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CITY OF WINTERS

GENERAL PLAN
BACKGROUND REPORT

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GENERAL PLAN
BACKGROUND REPORT

Adopted
May 19, 1992

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Roger Mosier, Councilman
William Pfanner, Councilman
Robert Harris, Councilman 1986 - 1990
Joe Ogando, Councilman 1986 - 1990

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INTRODUCTION

This document contains background information and analysis compiled for the City of Winters *General Plan*. The document provides background for the issues addressed in the *General Plan Policy Document* and is designed to satisfy State Planning Law requirements for background information for all mandated elements of the general plan.

The *Background Report* is organized into nine chapters covering groups of related issues: Chapter I, Land Use; Chapter II, Housing; Chapter III, Population; Chapter IV, Economic Conditions; Chapter V, Transportation and Circulation; Chapter VI, Public Facilities and Services; Chapter VII, Recreational and Cultural Resources; Chapter VIII, Natural Resources; and Chapter IX, Health and Safety. The information in this document is drawn from numerous sources, which are identified at the end of each chapter.

CHAPTER I

LAND USE

INTRODUCTION

Land use is the principal focus of the general plan. This chapter provides a context for the general plan by describing existing land use conditions and local, regional, state, and federal plans and policies that have a bearing on land use in Winters. This chapter also outlines the institutional setting of Winters, describing other agencies that have regulatory or review authority over activities in the Winters area.

REGIONAL SETTING

The city of Winters is located in the southwestern corner of Yolo County, immediately north of the Solano County line and just east of the Vaca Mountain Range. Winters lies approximately 14 miles west of the city of Davis and 10 miles north of the city of Vacaville. The city is bordered on the south and southeast by Dry Creek and Putah Creek.

The principal highways in or near the city are Interstate 505 and State Highway 128. Interstate 505, located less than one-half mile east of the city limits, serves as a key link between Interstate Highway 80, approximately 10 miles to the south, and Interstate 5, approximately 23 miles to the north. Highway 128, which originates at Interstate 505 and transects the city, serves as a major access route to Lake Berryessa. Monticello Dam, at Lake Berryessa, is located approximately 10 miles to the west of the city.

Figure I-1 shows Winters' regional setting.

URBAN LIMIT LINE AND CITY LIMITS

Winters' Urban Limit Line contains approximately 1,980 acres, of which 1,277 acres are currently (April 1992) within the incorporated city. The Urban Limit Line is defined by Interstate 505 on the east, Putah Creek and Dry Creek on the south and southwest, County Road 88 on the west, the northern boundary of the City's wastewater treatment plant, and a projection of County Road 32 A on the north. The topography of the Winters area is generally flat, although some areas are slightly rolling. Land slopes generally to the east at a grade of 1 to 2 percent. Elevation ranges from approximately 180 feet above sea level on the west to about 125 above sea level on the east.

Figure I-2 shows the Winters' Urban Limit Line and current (April 1992) city limits.

LAND USE PLANNING IN WINTERS

1976/1986 General Plan

The first Winters General Plan was adopted in 1976. In 1983, an eleven member General Plan Steering Committee was formed to formulate recommendations for revisions to the General Plan. The revised Housing Element was adopted in 1984. Revisions to the remaining elements of the General Plan were adopted by the City Council in 1985. An update was completed in 1986.

The *1976/86 General Plan* contained the seven elements required by State Planning Law, as well as addressed several optional issues. The *1976/1986 General Plan* provided for a buildout population of

between 13,000 and 15,000. The following is a description of the land use classifications used in the *1976/1986 General Plan*:

Residential

Low Density Residential (LD)	1-5 units per acre
Planned Residential (PR)	6-11 units per acre
Medium Density Residential (MD)	6-15 units per acre
High Density Residential (HD)	16-29 units per acre

Commercial

Central Commercial (CC)	This is the central business district of Winters.
Neighborhood Commercial (NC)	Located at major intersections: serve surrounding neighborhoods.
Highway-Special Commercial (HSC)	Contains two sub-classifications.
Highway Visitor Commercial	Caters to tourist and transient traffic.
Special Commercial	Intended for larger retail outlets.

Industrial

Light Industrial (LI)	Provides for limited manufacturing with little or no offsite environmental effects.
Heavy Industrial (HI)	Intended for industrial uses which require special attention due to potential offsite impacts.
Planned Industrial (PI)	Intended to provide for the maximum flexibility in encouraging industrial development. Provides for strict design and performance standards.

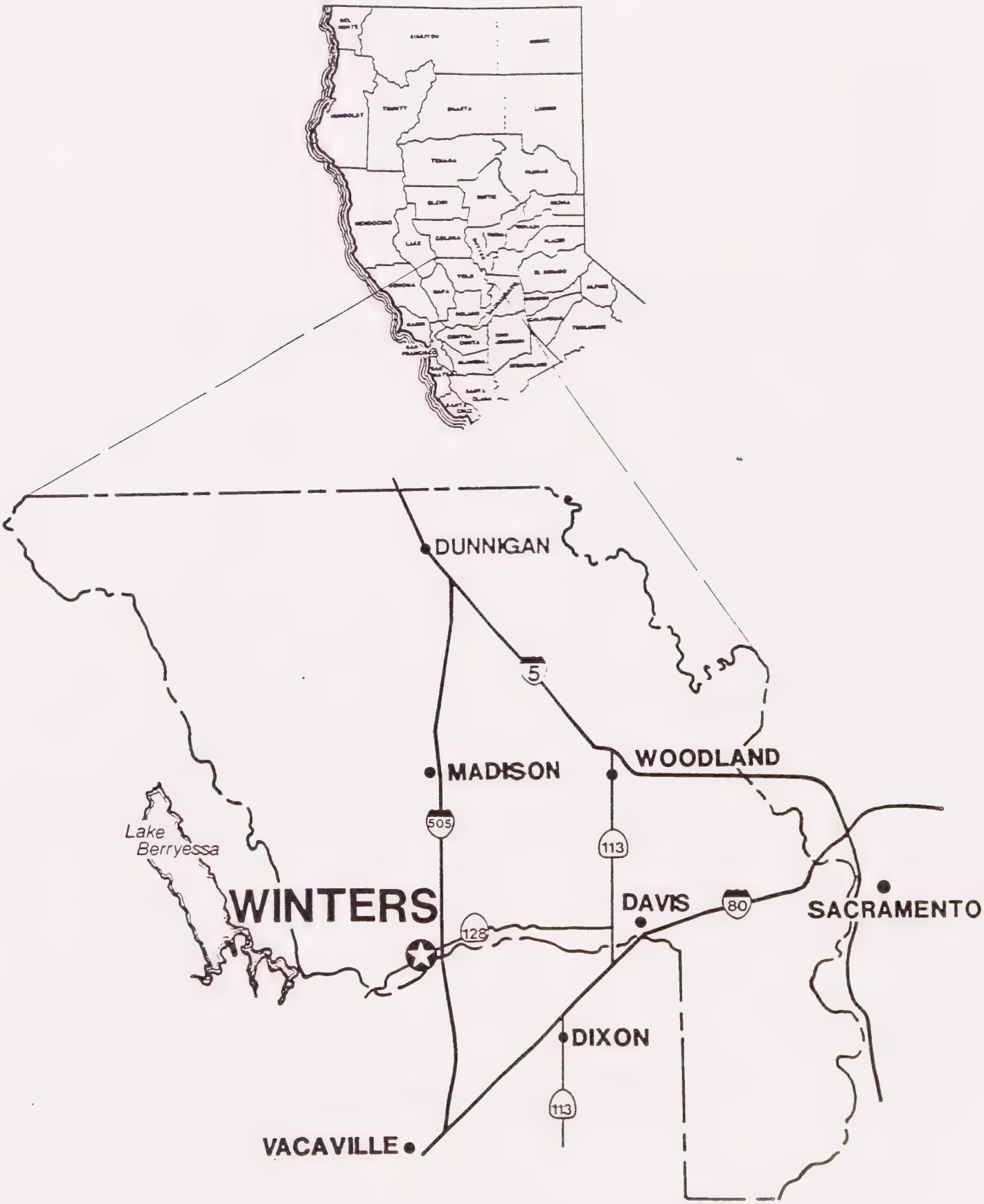
Other Classifications

Planned Mixed Use (PMU)	A special classification which has been applied to areas along East, East Baker, East Abbey, East Main and East Edwards Streets, where a mixture of potentially incompatible land uses exist.

The *1976/1986 General Plan Land Use Diagram* is reproduced in Figure I-3. Table I-1 summarizes the number of acres in the various land use classifications shown in the *1976/1986 General Plan*. Descriptions of the other classifications shown in Table I-1, including Agriculture, Open Space and Flood, Parks, and Public Use were not provided in the plan.

FIGURE I-1

REGIONAL LOCATION MAP



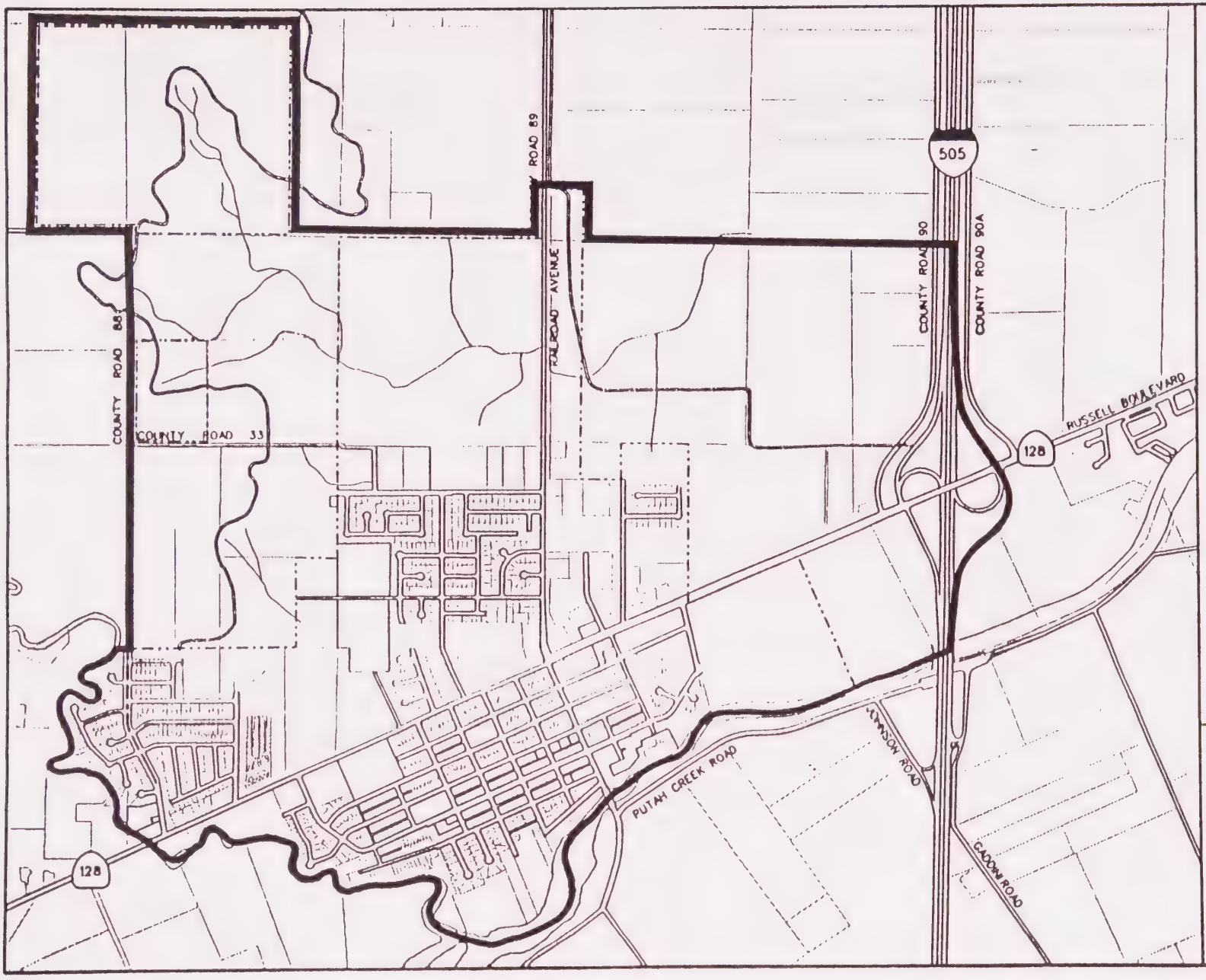


FIGURE I-2

WINTERS URBAN LIMIT LINE AND CITY LIMITS

April 1992

City Limits

Urban Limit Line

Source: City of Winters, April 1992

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0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

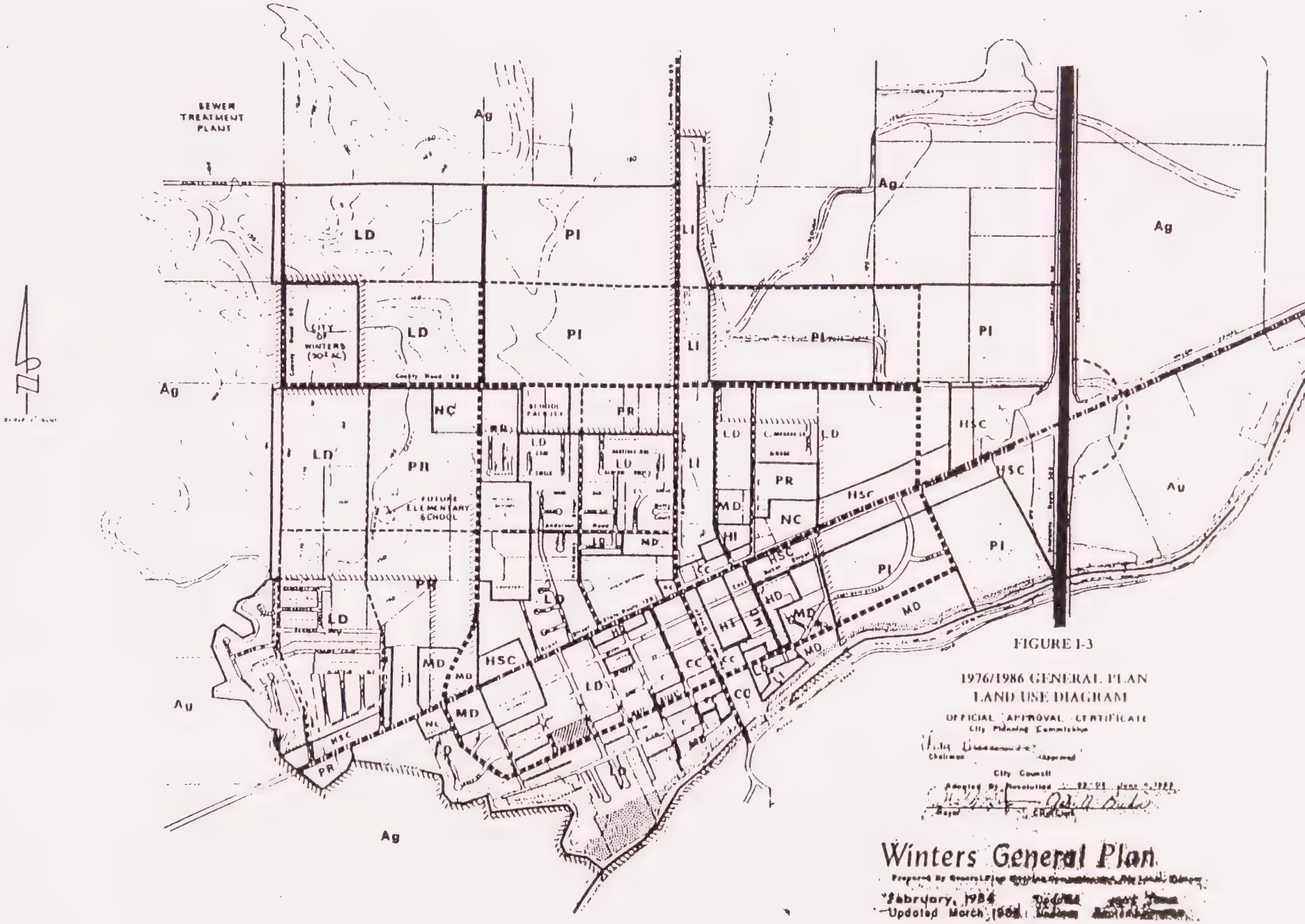

FIGURE I-3

1976/1986 GENERAL PLAN
LAND USE DIAGRAM

OFFICIAL APPROVAL CERTIFICATE
City Planning Commission

City Council

Winters General Plan

February, 1984
Updated March, 1988
UPDATED JUNE 1989

TABLE I-1

LAND USE SUMMARY BY
1976/1986 GENERAL PLAN CLASSIFICATIONS
(Gross Acres)

Land Use	Within City	Outside City	Total
Residential			
Low (LD)	396	251	647
Planned (PR)	42	109	151
Medium (MD)	39	24	63
High (HD)	1	0	1
Subtotal	478	384	862
Commercial			
Neighborhood (NC)	20	6	26
Central (CC)	40	0	40
Highway (HSC)	20	111	131
Subtotal	80	117	197
Industrial			
Light (LI)	48	0	48
Planned (PI)	0	377	377
Heavy (HI)	5	0	5
Subtotal	53	377	430
Planned Mixed (PMU)	23	0	23
Agriculture (Ag)	0	1,360	1,360
Open Space and Flood	18	7	25
Parks	6	12	18
Public Use	97	96	193
Totals	**755**	**2,353**	**3,108**

Source: *Winters General Plan*, 1986

1989/1992 General Plan Revision

The current General Plan revision effort was prompted by dramatic growth during the 1986-88 period and by submission in 1988 of a specific plan application for 886 acres of land in the north part of Winters. After lengthy discussion of the North Area Specific Plan and its potential implications for the city, the City Council decided a comprehensive review of its General Plan was warranted.

Accordingly, in February 1989, the Council instituted a moratorium by approving an Interim Control Ordinance to "study land use, City service capability, factors which are affected by the cumulative effects of the many projects contemplated."

To provide for citizen input into the General Plan revision process, the City Council in March 1989 appointed a nine-member Plan Advisory Committee (PAC) to develop a new Draft General Plan. After 18 meetings between May 1989 and February 1990, the PAC published a Draft General Plan in 1990. The Draft General Plan included all state-mandated elements, except for a noise element, and covered approximately 3.10 square miles, including the territory in the North Area Specific Plan.

In 1989, a citizen initiative qualified for and was voted on in the November election. The initiative would have set a population limit (8,000 people by the year 2000, and 11,000 by the year 2010), required new development to fund complete incremental costs of public facilities and establish certain public service standards, preserve the character of Winters' retail/commercial area, protect the ecology of Putah and Dry Creek and develop recreation potential thereon, and promote local commercial and industrial activity and design variety. The initiative failed in the November 1989 election.

During March and April 1990, the Planning Commission conducted a preliminary review of the PAC plan. Subsequently, between April and October 1990, the Planning Commission held 11 workshops during which the Commission extensively reviewed each element of the plan and each of the five planning areas designated in the plan.

Following conclusion of the Planning Commission's review, City staff and consultants sought City Council direction on several key policy issues. Having secured this policy direction in February and March 1991, City staff and consultants began redrafting the *General Plan*. A public review draft of the *General Plan*, along with a draft environmental impact report, draft public facility master plans, and financing analysis were released for public review in October 1991.

Between early November 1991 and early January 1992 the City Council and Planning Commission held six public hearings on the *Draft General Plan*, *Draft General Plan EIR*, and related General Plan documents. During late January and late February 1992 the City Council and Planning Commission met jointly eight times and separately once to formulate their recommendations for the final *General Plan*.

Based on the direction of the Planning Commission and City Council, City Staff and Consultants prepared the final *General Plan*, *Final General Plan EIR*, and related General Plan documents for final review and adoption. After final hearings and review by the Planning Commission and City Council the City Council adopted the *General Plan* and certified the *Final EIR* on May 19, 1992.

ZONING

In accordance with State law, cities and counties have broad latitude in establishing zoning standards and procedures. Outside of a general requirement for open space zoning and several special requirements governing residential zoning, State law establishes only broadly the scope of zoning regulation and sets

minimum standards for its adoption and administration. One key requirement, however, is that zoning be consistent with the general plan.

Winters *Zoning Ordinance*, originally adopted June 12, 1969 (re-codified 1982) has been amended on several occasions, in many instances to reflect changes in the Winters General Plan.

Following are brief summaries of the zoning districts in the Winters *Zoning Ordinance*. These summaries outline only general standards and are provided for reference only. The *Zoning Ordinance* itself should be consulted for specific questions regarding permitted and conditionally permitted uses, and other development standards.

- A-1, Agricultural, for range land, field crops, orchards, greenhouses and single-family dwellings, requiring a minimum lot size of two and one-half acres;

- O-S, Open Space, for preservation of natural resources, wildlife sanctuaries, resource production as permitted in the A-1 classification, outdoor recreation, buffering or bordering industrial and commercial development, managing urban growth, and to generally keep land in an unimproved, natural or scenic condition;

- R-1, Single-Family Residential, with three sub-classes:

  R-1-6000, requiring a minimum lot size of 6,000 square feet (7,000 for corner lots),

  R-1-7500, requiring a minimum lot size of 7,500 square feet (8,500 for corner lots), and

  R-1-9000, requiring a minimum lot size of 9,000 square feet (10,000 for corner lots);

- R-2, Two-Family Residential, for mixed areas of single-family dwellings and duplexes, requiring a minimum lot area per duplex unit of 3,000 square feet (duplexes on corner lots require 7,000 square feet in total area);

- R-3, Medium Family Residential, for multiple-family dwellings, requiring a minimum lot area per unit of 1,500 square feet on a building site of at least 7,000 square feet;

- R-4, High Density Residential, requiring a minimum lot area per dwelling unit of 1,000 square feet on a building site of no less than 6,000 square feet;

- C-1, Neighborhood Commercial, for daily retail and service needs of residential neighborhoods, from groceries to drug stores, professional offices and family restaurants;

- C-2, General Commercial, for a broad range of commercial activity, including department stores, hotels and carpentry shops;

- C-S, Special Commercial, for large-lot-type commercial activity, such as auto dealerships, lumber yards, recreational vehicle camping parks, skating rinks and wholesale operations, requiring a minimum of one acre of land area;

- C-H, Highway Commercial, for sales and services which serve the particular needs of the traveling public, including auto sales, motels and a full range of restaurant, entertainment and recreational uses;

- M-1, Light Industrial, for industrial development which produces no environmental impact or hazard, but allows manufacturing and processing of a wide range of products and administrative offices;

- M-2, Heavy Industrial, for more intensive industrial activity which may have some unavoidable environmental impacts when such conditions do not affect adjoining uses, and including such uses as breweries, textile mills and mining and construction equipment manufacturing;

- M-P, Industrial Park, for development of new industries and enhancement of existing industries such as permitted in the M-1 and M-2 zoning classifications, but requiring high standards of landscaping, architecture and nuisance reduction, and requiring a minimum 20,000-square-foot lot size; and

- P-R, Park, Parkway and Recreation, for public and private recreational uses, including parks, golf courses, open space wildlife sanctuaries and equestrian riding areas, on a minimum of five acres of land area.

The *Zoning Ordinance* provides for numerous accessory and conditional uses for each of the districts and special provisions for parking, special setbacks, signage, "bungalow court" development, and the use of the Planned Development (P-D) overlay. Small family day care operations (up to six non-residing children) are freely allowed in residential areas, while larger day care facilities, home occupations, public and quasi-public facilities (schools, churches, meeting halls, etc.) and off-street parking are permitted as conditional uses. The *Zoning Ordinance* contains many limitations and provisions relating to the areas abutting the boundaries between different classifications, such as between residential and commercial districts, and suggests that the R-2 classification is intended to assist in buffering single-family areas from commercial areas and major streets. Multiple-family dwellings, as permitted in the R-4 zone classification, are also allowed in both the C-1 and C-2 areas. A separate section in the ordinance regulates condominium conversions. The Planned Development (P-D) overlay may be applied as a conditional use, in combination with any zone classification on parcels of at least ten acres in size, for the purpose of increased efficiency, flexibility and integration of differing uses, and as a means of meeting General Plan objectives. Density increases up to 10 percent may also be permitted.

The minimum lot size is 5,000 square feet for the commercial and industrial zone classifications, with the exception of the C-S and M-P zone classifications, for which minimum lot sizes were indicated above. Regulations on commercial signage vary among zone classifications such that signage is limited in specific ways in the C-1 and C-H classifications, generally less controlled in C-2, and in the C-S classification, required to conform to the Scenic Highways Element of the General Plan. Height regulations also vary, from 30 feet maximum in the R-1 and R-2 zones, to 75 in the R-4 zone and no limits in the M-1 and M-2 zone classifications. Various maximum lot coverages by buildings on sites are specified for the industrial zone classifications, and for the C-S commercial zone. For the C-S zone and the M-1 zones it is 50 percent, for M-2 it is 60 percent, and for the M-P zone, 30 percent.

The *Zoning Map* is shown in Figure I-4.

EXISTING LAND USE

Existing land use development in Winters is characterized primarily by low density residential development, a small central business district (CBD), and an older industrial area directly adjacent to the CBD, consisting of warehouses, storage silos, and loading equipment used for storing, processing, and

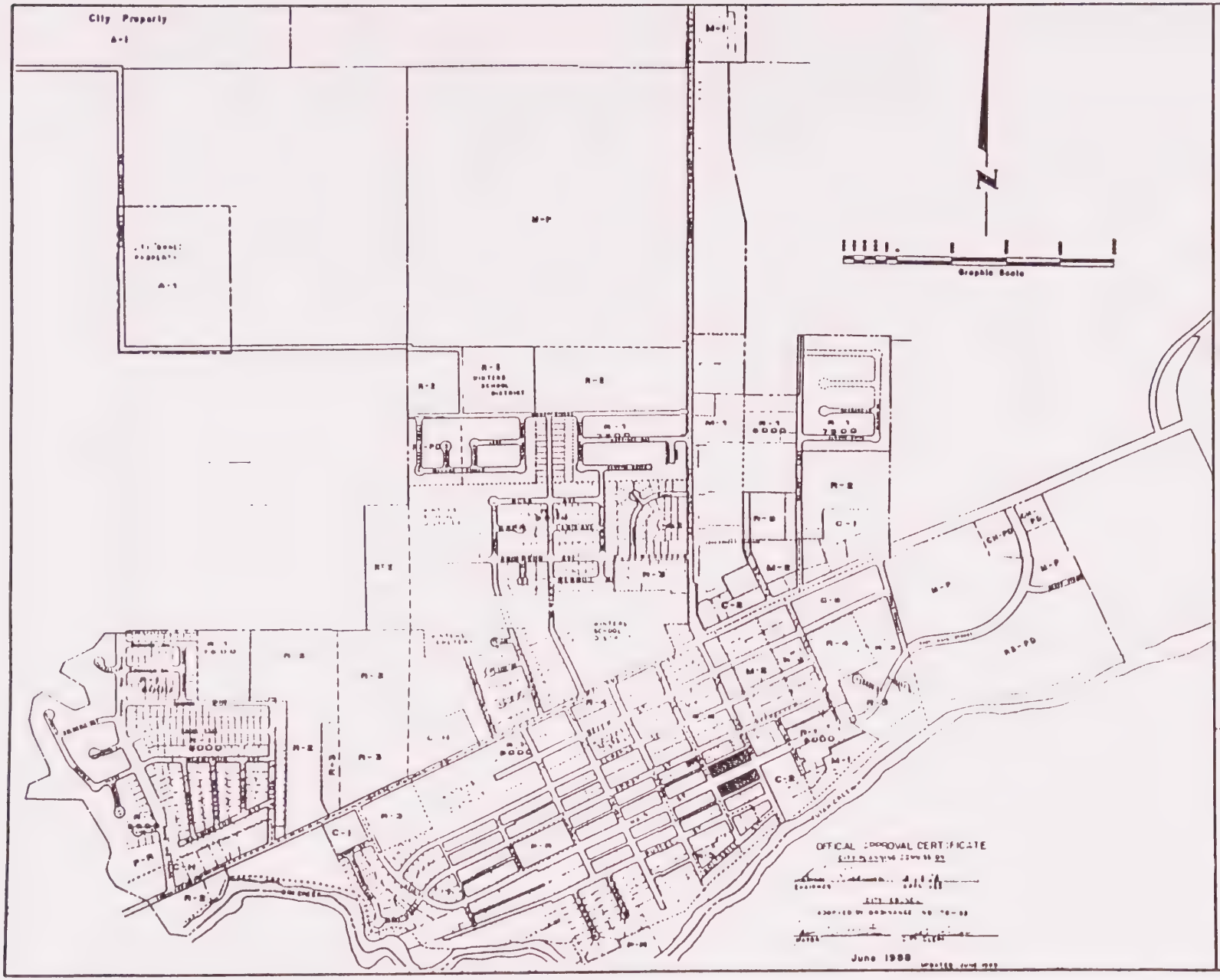

FIGURE I-4

WINTERS ZONING MAP

	City Boundary
	Zone Boundary
A	Agricultural
R-1	Single Family Residential
PD	Planned Development
R-2	Two Family Residential
R-3	Multiple Family Residential
R-4	Multiple Family Residential
C-1	Neighborhood Commercial
C-2	General Commercial
C-H	Highway Commercial
C-S	Special Commercial
M-1	Light Industrial
M-2	Heavy Industrial
P-R	Parks and Recreation
	Historic Preservation Overlay Zone
M-P	Planned Industrial

Source: City of Winters, June 1989

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shipping agricultural products. The condition of the industrial area, which lacks well-developed infrastructure (including improvements such as street payment, sidewalks, curbs, and gutters), combined with some deterioration in the CBD area, has prompted the establishment of a Redevelopment Agency and program in the city.

The original central area of the city, south of Grant Avenue, and primarily west of the CBD, developed slowly from the 1890s through the 1940s. Major residential areas developed since World War II are on the north, between Grant Avenue and Niemann Street, and in the area east of Valley Oak Drive. More recent development has taken place west of Valley Oak Drive, at the western end of Niemann Street, (south of the Agricultural School), and on the north end of Walnut Lane (formerly Northeast Street). The periphery of the central area has developed at a slower pace, due to the limited land area.

LOCAL AGENCY FORMATION COMMISSION AND SPHERE OF INFLUENCE

In 1985, the various state laws regulating city and special district organization and annexations were consolidated in the *Cortese-Knox Local Government Reorganization Act* (*Government Code §56000 et seq.*).

The 1963 *Knox-Nisbet Act*, which was superseded by *Cortese-Knox Act*, created local agency formation commissions (LAFCOs) in each county in California to regulate the organization and extension of services provided by cities and special districts. The Act declares that "among the purposes of the commission are the discouragement of urban sprawl and encouragement of the orderly formation and development of local agencies based upon local conditions and circumstances. One of the objects of the commission is to make studies and to obtain and furnish information which will contribute to the logical and reasonable development of local agencies in each county and to shape the development of local agencies so as to advantageously provide for the present and future needs of each county and its communities" (*Government Code §56301*). In meeting these responsibilities, each LAFCO is required "to review and approve or disapprove, with or without amendment, wholly, partially, or conditionally, proposals for changes of organization or reorganization" (*Government Code §56375 (a)*).

According to *Government Code §56021*, "change of organization" means any of the following:

- A city incorporation
- A district formation
- An annexation to, or detachment from, a city or district
- A disincorporation of a city
- A district dissolution
- A consolidation of cities or special districts
- A merger or establishment of a subsidiary district

The special districts that fall under LAFCO jurisdiction are defined in *Government Code §56036*. School districts and redevelopment agencies, among others, are excluded by this definition and are, therefore, not subject to LAFCO review.

In addition to the regulatory responsibilities of LAFCO, the commission is empowered to initiate and to make studies of existing governmental agencies. These studies include, but are not limited to, inventorying local agencies and determining their maximum service areas and service capabilities.

As the basis in part for making decisions about organizational changes and annexations, LAFCO must adopt a sphere of influence for each local agency subject to LAFCO regulation. The *Cortese-Knox Act*

defines a sphere of influence as "a plan for the probable ultimate physical boundaries and service area of a local agency" (*Government Code §56076*). In practice, "ultimate" is typically defined as 20 years. Under *Government Code §56080*, this can include the identification of an "urban service area" which identifies an area within a city's sphere of influence which is served by urban facilities, utilities, and services, or which is proposed to be served during the first five years of an adopted capital improvement program. The urban service area boundary shall be adopted by the LAFCO in cooperation with the affected city (*Government Code §56080*). Annexations by the affected city of land which falls within an identified "urban service area boundary" may not be denied by the LAFCO which adopts the boundaries.

In determining the sphere of influence for each local agency, the LAFCO must consider and prepare a written statement of its determinations with respect to each of the following:

- The present and planned land uses in the area, including agricultural and open space lands.
- The present and probable need for public facilities and services in the area.
- The present capacity of public facilities and the adequacy of public services which the agency provides or is authorized to provide.
- The existence of any social or economic communities of interest in the area if the commission determines that they are relevant to the agency (*Government Code §56425*).

Once these spheres are adopted, LAFCO decisions must be consistent with applicable spheres (*Government Code §56375.5*). This means that LAFCO may not approve city annexations outside the adopted sphere of influence for a city.

Winters' sphere of influence was adopted by the Yolo County LAFCO in September 1981 and amended in 1986.

LAFCO has established two spheres of influence for Winters. The first is a ten-year sphere of influence which defines urban growth between 1986 and 1996. The second line is a twenty-year sphere of influence boundary which is intended as a demarcation line between future urban uses and rural uses in the Winters area.

Figure I-5 depicts the ten- and twenty-year sphere of influence boundaries adopted by LAFCO for Winters in 1986.

ANNEXATION HISTORY

Annexations to cities are regulated by the *Cortese-Knox Local Government Reorganization Act* (*Government Code §56000 et seq.*). Generally, any land that is contiguous to a city may be annexed to the city if the annexation does not result in an island of unincorporated land completely surrounded by the city or in narrow strips of unincorporated land.

Proponents of an annexation must secure the approval of LAFCO. Annexation proceedings may be initiated by application to LAFCO either by resolution of the City or through petition of landowners or registered voters, after securing City approval of prezoning for the area. LAFCO holds a hearing on the proposed annexation, considers the proposal, staff report, testimony of affected agencies and parties, service plan, and environmental documents, and approves or disapproves the annexation proposal.

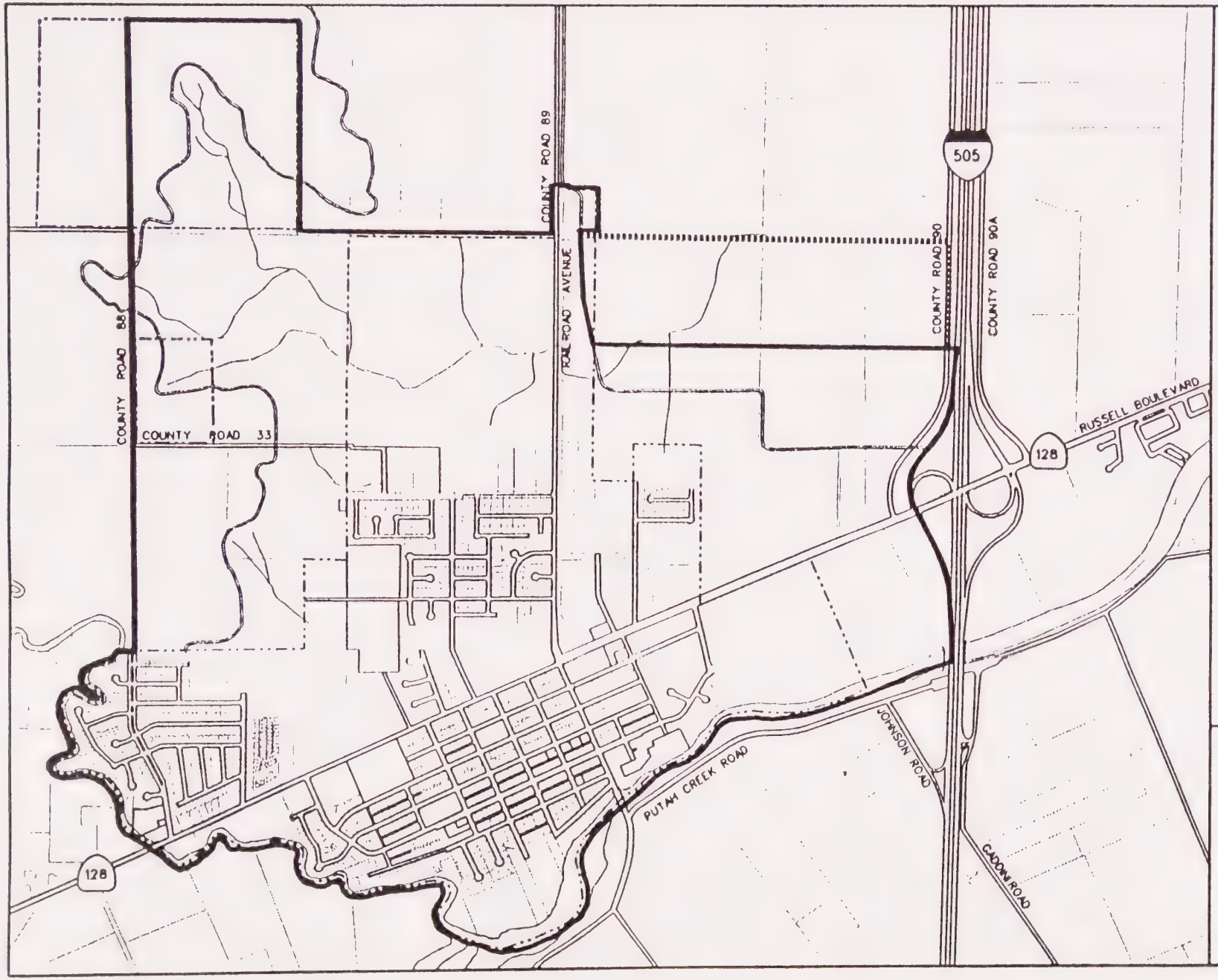

FIGURE I-5

WINTERS SPHERE OF INFLUENCE BOUNDARIES

City Limits (1991)

10-Year Sphere of Influence

20-Year Sphere of Influence

Source: Yolo County LAFCO, 1986

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N

0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

Upon LAFCO approval, unless the City has been authorized to proceed without notice and hearing, the City must conduct a protest hearing. At the protest hearing, the City Council must either approve the proposal, terminate the proposal, or call for election, based on the proportion of written protests of the registered voters or landowners received.

In inhabited territory (territory with at least 12 registered voters), the City Council must order the change if written protests have been filed by less than 25 percent of the registered voters or less than 25 percent of the number of owners of land who also own 25 percent of the assessed value of land within the affected territory. The proposal must be terminated by the City Council if written protests have been filed by more than 50 percent of the voters in the affected territory. The City Council must send the proposal to special election if written protest is filed by 25 to 50 percent of voters or landowners of inhabited territory (*Government Code §57075(a)*). If approved by the voters, the City Council must adopt a resolution of approval and forward the resolution to LAFCO. In uninhabited territory, the City Council must approve the proposal if no majority landowner protest is received and deny the proposal if majority landowner protest is received (*Government Code §57075(b)*).

Annexation proposals disapproved by LAFCO, terminated by written protest, or terminated by special election must wait at least one year before a similar proposal is resubmitted to LAFCO.

Annexations

Since 1972, there have been nine annexations to the City, totaling 566.21 acres. All annexations between 1972 and 1991 are listed in Table I-3 and shown in Figure I-6.

TABLE I-3

ANNEXATIONS TO THE CITY OF WINTERS
1972 to 1991

Annexation Name	Acreage	Year
Viking Edgewood	19.95	1972
Benson	31.07	1977
Vickrey	26.55	1980
Vanderberghe	65.13	1985
Carter	23.00	1986
Cassil	160.00	1986
LDS Church	13.19	1986
Lopez	30.00	1987
Winters Wastewater Treatment Plant	197.32	1988
Total	**566.21**	

Source: City of Winters, 1991

REDEVELOPMENT

In 1990, the Winters Community Development Agency proposed a redevelopment project for certain portions of the city, as authorized by California Community Redevelopment Law (*Health and Safety Code*

§33000 et seq.). The redevelopment plan, entitled City of Winters Community Development Project Area Plan, when adopted, will serve as both an enabling document and as guidelines for Agency decisions regarding development and redevelopment of properties within the Project Area. The Plan will help authorize and finance Agency projects related to public infrastructure improvements, community facilities, and other support projects, all with the purpose of eliminating "blighted conditions" and "blighting influences," as defined in by state redevelopment law. The Redevelopment Project Area is expected to be adopted in Summer 1992. Figure I-7 shows the boundaries of the proposed Redevelopment Project Area.

OTHER PLANS AND LAND USE REGULATIONS AFFECTING WINTERS

The city of Winters is relatively isolated from neighboring cities. The boundaries of the planning areas of the closest cities--Davis, Vacaville, and Woodland--are several miles away from Winters. Consequently, aside from regional issues such as air quality and transportation, the land use plans of these communities have little immediate effect or bearing on land use in Winters.

Land surrounding the city of Winters consists entirely of unincorporated portions of either Yolo or Solano County. The Yolo/Solano County line follows Putah Creek, which is also Winters' southern city boundary.

The following sections describe the land use classifications contained in both the Yolo and Solano County General Plans for lands within the immediate vicinity of Winters. Figure I-8 shows the location of these classifications relative to Winters.

Yolo County General Plan

North of Putah Creek, all land surrounding the Winters city limits, including land within Winters' Urban Limit Line, is within unincorporated Yolo County.

The *Yolo County General Plan*, adopted in 1983 (amended 1988), includes a community plan for the Winters area, entitled Winters Vicinity. As shown on the Winters Vicinity plan, lands north of the city limits and south of County Road 33 have land use classifications of Agriculture, Phased Low Density Residential (1-5 dwellings per acre), and Agriculture.

Two small industrial areas are shown east of County Road 89. Highway Commercial sites are designated on the west side of the Highway 128/Interstate 505 intersection. Land southwest and west of the city, as well as land north of County Road 33, is classified as Agriculture.

Solano County General Plan

The area south of the Putah Creek lies entirely in Solano County. The *Solano County General Plan Land Use and Circulation Map*, adopted December 1980, shows most of the land within four to five miles south of Putah Creek and Winters in non-urban land use classifications, including Agriculture-Intensive and Agriculture-Extensive. According to the *General Plan*, Intensive Agricultural lands are comprised of highly fertile soils brought into intensive production through irrigation. Extensive Agricultural lands are generally non-irrigated, and include uses such as dryfarming and grazing.

It is the County's policy to protect land in both classifications from intrusion of non-agricultural uses. Most of the properties in the area immediately south of Winters are under *Williamson Act* contracts.

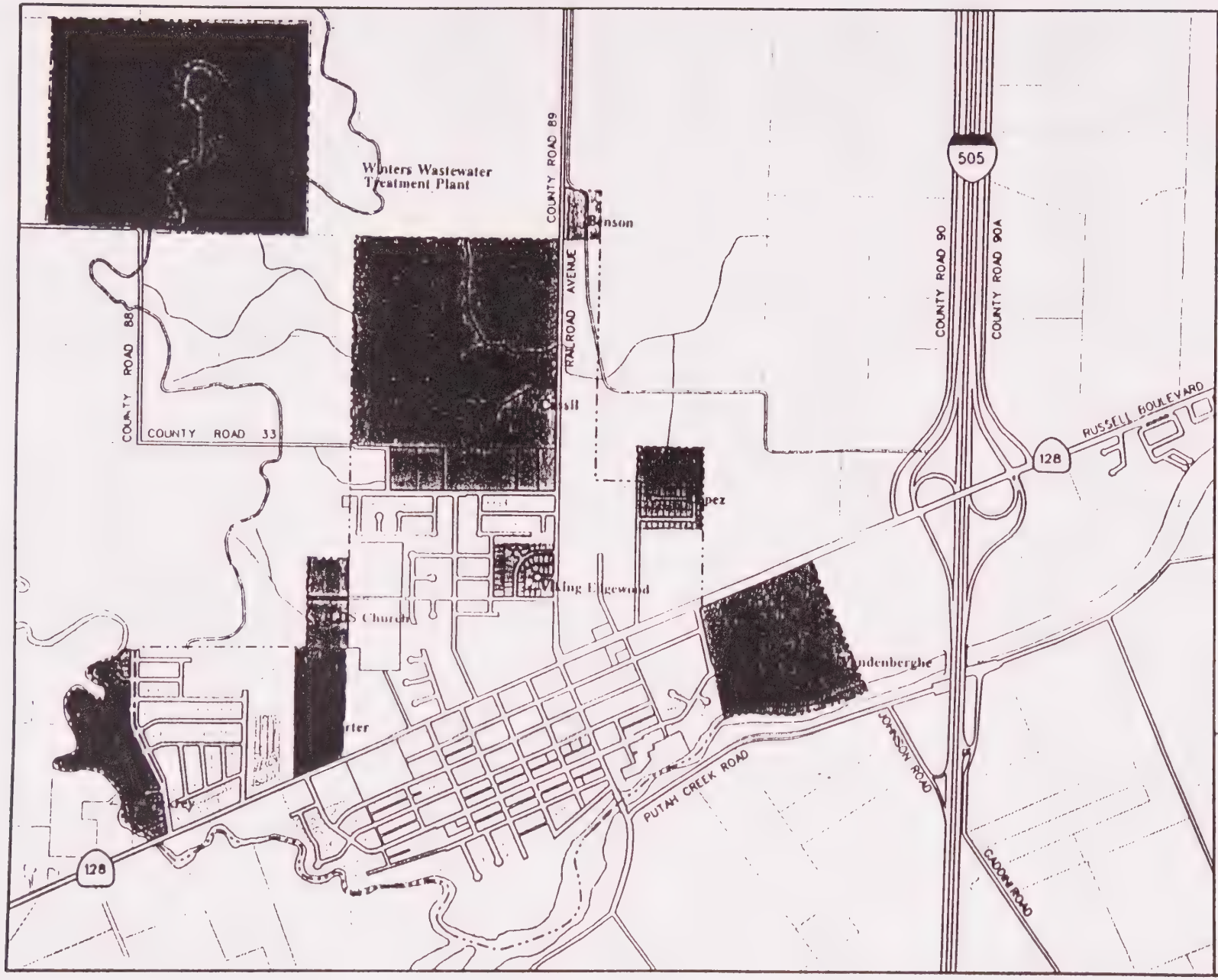

FIGURE I-6

ANNEXATION HISTORY
1972 - 1991

Annexation Name	Acreage	Year
Viking Edgewood	19.95	1972
Benson	31.07	1977
Vickrey	26.55	1980
Vandenberghe	65.13	1985
Carter	23.00	1986
Cassil	160.00	1986
LDS Church	13.19	1986
Lopez	30.00	1987
Winters Wastewater Treatment Plant	197.31	1988

Source: City of Winters, 1991

CITY OF WINTERS

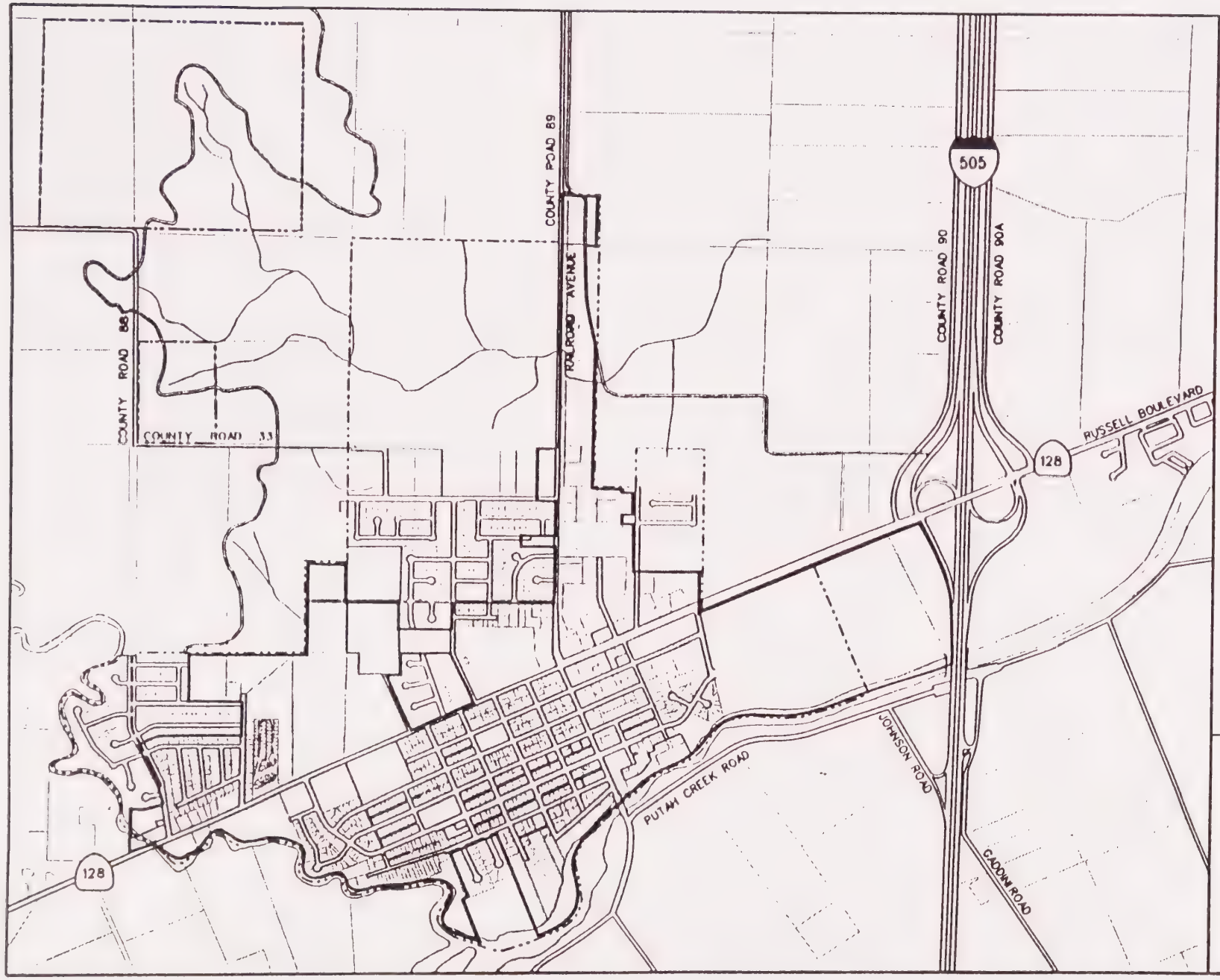

FIGURE I-7

COMMUNITY DEVELOPMENT PROJECT AREA BOUNDARY

Community Development Project Area

City Limits (1991)

Source: Draft Environmental Impact Report on the City of Winters Community Development Project Area Plan, Piedmont Associates, April 1991

CITY OF WINTERS

N

0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

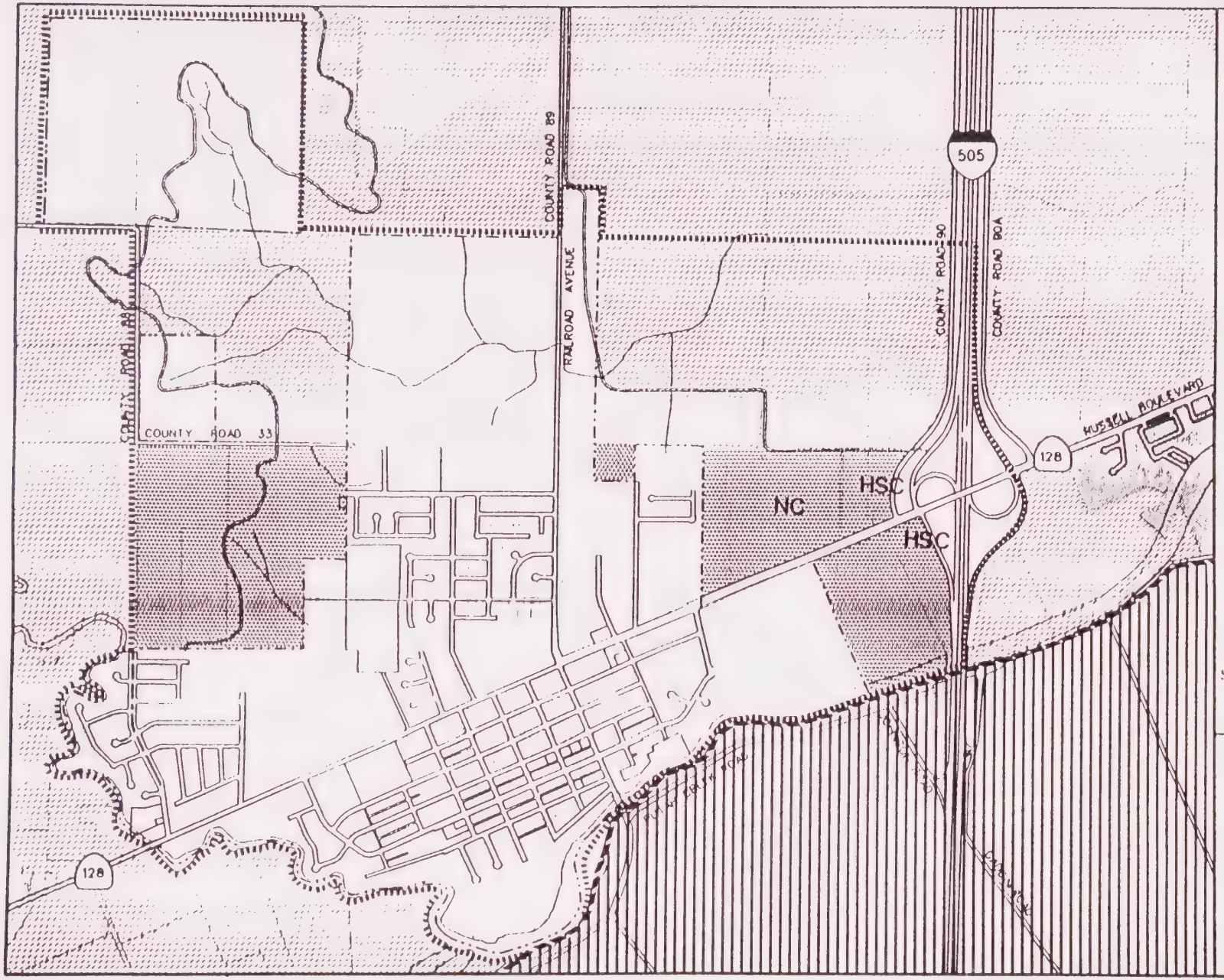

FIGURE I-8

YOLO COUNTY AND SOLANO COUNTY GENERAL PLAN LAND USE CLASSIFICATIONS

- Winters City Limits (1991)
- Winters Urban Limit Line
- Yolo/Solano County Boundary
- Agriculture-Intensive (Solano)
- Agriculture (Yolo)
- Residential Medium Density (Yolo)
- Agriculture Phased Low Density Residential (Yolo)
- Industrial (Yolo)
- NC — Neighborhood Commercial (Yolo)
- HSC — Highway Service Commercial (Yolo)

Sources: Winters Vicinity, Yolo County General Plan; Land Use and Circulation Map, Solano County General Plan

CITY OF WINTERS

N

0 400 800 1900 1600 2000

BASE MAP: JUNE 1991

Land southwest of Winters and west of Pleasant Creek is classified either Residential-Rural (2.5-10 acres per unit) or Watershed. The entire area is outside Solano County's adopted Urban Growth Line.

OTHER AGENCIES CONCERNED WITH LAND USE IN WINTERS

Several governmental agencies exercise some level of regulatory control over land use decisions in Winters, including both permitting and review authority.

Agencies with Permitting Authority

The following paragraphs discuss those agencies which have some sort of permitting authority.

The Yolo-Solano Air Pollution Control District (YSAPCD) is responsible for granting two types of permits which pertain to land use. The first, the Authority to Construct, is required for any proposal to construct, modify, or operate a facility or equipment that will emit pollutants from a stationary source in the atmosphere. The second, the Permit to Operate, must be obtained from the APCD to ensure compliance with requirements implemented with the Authority to Construct. The Permit to Construct includes a renewal requirement which creates an ongoing monitoring program.

The California State Lands Commission has exclusive jurisdiction over all submerged lands owned by the State as well as the beds of navigable rivers, sloughs, and lakes. The Commission has the authority to grant three kinds of permits: Mineral Extraction Leases, Dredging Permits, and Land Use Leases.

The California State Reclamation Board maintains jurisdiction over all Federal Flood Control Projects and levees which are either part of such projects or which may affect such projects. The Reclamation Board is authorized to grant Encroachment Permits for any activity proposed along or near flood control levees, including changes in land use, construction, earthwork, or removal of vegetation.

The State Department of Fish and Game has jurisdiction over all "waters of the state," including any lakes, streams, or rivers containing fish or wildlife resources. The Department of Fish and Game has authority over two permitting processes. Streambed Alteration Agreements are required for projects which alter the flow of any lake, stream, or river in the state. Suction Dredging Permits are required for projects involving suction or vacuum dredging activities in state waterways.

The Central Valley Regional Water Quality Control Board (RWQCB) maintains jurisdiction over discharges into all rivers, creeks, streams, and canals in the area. Any project that will discharge wastes into any surface waters must obtain waste discharge requirements from the RWQCB. These requirements serve as the federal National Pollutant Discharge Elimination System (NPDES) Permit.

The California Department of Transportation (Caltrans) has authority over all state highway and freeway rights-of-way, including easements, and undeveloped rights-of-way which have been acquired in anticipation of future construction. Any project which proposes to construct a road connection or perform earthwork within a state highway or freeway must obtain an Encroachment Permit from Caltrans.

The United States Army Corps of Engineers, pursuant to the *Rivers and Harbors Act*, the Army Corps maintains jurisdiction over all navigable waterways (including nonnavigable streams, creeks, marshes, and diked lands) and requires a permit for any work within these waterways.

Agencies with Review Authority

In addition to those regulatory agencies with direct permitting authority, several local, state, and federal agencies are involved with the permit and environmental process. These agencies, while not issuing permits, have particular areas of expertise or maintain certain review authority and may comment on various aspects of project development.

State of California Department of Water Resources (DWR) is responsible for protecting and managing California's water resources. It is authorized to develop adequate supplies from all available sources including transfer of water to areas of need, desalinization, reclamation, and wastewater recycling. It maintains public safety through flood water management, dam supervision, and safe drinking water projects.

The DWR is under contract to the U.S. Army Corps of Engineers to maintain Putah Creek according to Corps guidelines. The maintenance program, which extends from the Yolo Bypass to the Putah Creek Bridge (Railroad Avenue), involves clearing of vegetation from the channel invert, and channel bottom clearing.

Yolo County Flood Control and Water Conservation District includes 190,000 acres encompassing the cities of Woodland, Davis, and Winters. The District has broad authority to plan, develop, and manage water resources, including construction, operation, and maintenance of irrigation, drainage, and flood control facilities, and power plans. The overall goal of the District is to assure an adequate water supply (quantity and quality) and adequate control of flooding and drainage.

The California Department of Parks and Recreation reviews development projects in relation to state recreation facilities The Department has also prepared recreation plans covering a large area which would be used in the review of projects, while the State Office of Historic Preservation, within Parks and Recreation, is the designated State Historic Preservation Office (SHPO) and monitors state and federal registered historical resources as well as other statutory responsibilities.

The State of California Native American Heritage Commission reviews projects and comments on potential impacts to Native American archeological resources. The Commission is directly involved with a procedure if Native American artifacts or remains are discovered during construction activities.

The State Department of Fish and Game, as a trustee agency, reviews projects and comments on potential impacts to fish and wildlife resources in general, and identifies potential impacts to endangered or threatened plant or animal species under the California *Endangered Species Act*. The Department is required to issue a written finding indicating whether a proposed project would "jeopardize" the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of habitat essential to the continued existence of the species. If the Department makes this "jeopardy" finding, it is then required to develop "reasonable and prudent alternatives" to conserve the endangered or threatened species.

The California State Clearinghouse, within the Office of Permit Assistance, is the point of contact for review of environmental documents where one or more state agencies will be responsible or trustee agency. The Clearinghouse circulates environmental documents among state agencies, coordinates review, and forwards comments to the lead agency.

The United States Environmental Protection Agency (EPA) has review authority over environmental documents that are prepared and circulated pursuant to the *National Environmental Protection Act (NEPA)*.

The EPA can comment on the draft EISs, and NEPA procedures require the filing of final EISs with the EPA. The EPA has authority over development projects pursuant to the *Clean Water Act §404*, which overlaps the Army Corps of Engineers' authority. Generally, the EPA reviews Department of Army Permits for compliance with guidelines for implementing the *Clean Water Act §404* requirements. The EPA can, in rare cases, override an Army Corps of Engineers decision on a Department of Army permit in order to prohibit discharges into waterways.

The United States Fish and Wildlife Service must be consulted on all federal projects, such as those undertaken by the Army of Corps of Engineers, pursuant to the *Fish and Wildlife Coordination Act*. The Service comments on potential project effects on "endangered or threatened" plant and animal species under the *Federal Endangered Species Act*. In reviewing a project, the Fish and Wildlife Service could issue a "jeopardy" determination and would propose reasonable alternatives to the permitting agency similar to the State Department of Fish and Game process. The Fish and Wildlife Service also comments generally on potential effects on fish and wildlife resources.

The National Marine Fisheries Service is also consulted on all Department of Army Permits as part of the Fish and Wildlife Coordination Act. The National Marine Fisheries Service reviews development projects in relation to overall effects on anadromous fish such as salmon, striped bass, and steelhead. The Service also considers any endangered or threatened anadromous fish which may exist in the area.

Other Agencies

Winters Joint Unified School District assesses school impact fees prior to the issuance of building permits by the City.

County of Yolo, in accordance with Title 3, Chapter 12 of the *Yolo County Code*, collects development fees prior to issuance of building permits by the City (proposed).

GLOSSARY

Acres, Gross
The entire acreage of a site, including roads and right of way.

Acres, Net
The acreage of a site that can be actually built upon, excluding roads and rights of way.

Annex
To incorporate a land area into an existing district or municipality, with a resulting change in the boundaries of the annexing jurisdiction.

Density, Residential
The number of permanent residential dwelling units per acre of land. Densities specified in the General Plan are expressed in units per gross acre.

Development
The physical extension and/or construction of urban land uses. Development activities include: subdivision of land; construction or alteration of structures, roads, utilities, and other facilities; installation of septic systems; grading; deposit of refuse, debris, or fill materials; and clearing of natural vegetative cover (with the exception of agricultural activities). Routine repair and maintenance activities are not included in this definition.

Floor Area Ratio (FAR)
The gross floor area permitted on a site divided by the total net area of the site, expressed in decimals to one or two places. For example, on a site with 10,000 net square feet of land area, Floor Area Ratio of 1.0 would allow a maximum of 10,000 gross square feet of building floor area to be built. On the same site, an FAR of 2.0 would allow 20,000 square feet, and an FAR of 0.5 would allow only 5,000 square feet.

Land Use
The occupation or utilization of land or water area for any human activity or any purpose defined in the General Plan.

Parcel
A lot, or contiguous group of lots, in single ownership or under single control, usually considered a unit for purposes of development.

Specific Plan
Under Article 8 of the *Government Code §65450 et seq*, a legal tool for detailed design and implementation of a defined portion of the area covered by a general plan. A specific plan may include all detailed regulations, conditions, programs, and/or proposed legislation that may be necessary or convenient for the systematic implementation of any general plan element(s).

Sphere of Influence
The probable ultimate physical boundaries and service area of a local agency (city or district) as determined by the Local Agency Formation Commission (LAFCO) of the county.

Subdivision

The division of a tract of land into defined lots, either improved or unimproved, which can be separately conveyed by sale or lease, and which can be altered or developed. "Subdivision" includes a condominium project as defined in *California Civil Code §1350* and a community apartment project as defined in *Business and Professions Code §11004*.

Urban Limit Line

A boundary located to mark the outer limit beyond which urban development will not be allowed. It has the aim of discouraging urban sprawl by containing urban development during a specified period, and its location may be modified over time.

Williamson Act

Known formally as the *California Land Conservation Act of 1965*, it was designed as an incentive to retain prime agricultural land and open space in agricultural use, thereby slowing its conversion to urban and suburban development. The program entails a 10-year contract between a city or county and an owner of land whereby the land is taxed on the basis of its agricultural use rather than the market value. The land becomes subject to certain enforceable restrictions, and certain conditions need to be met prior to approval of an agreement.

PERSONS CONSULTED

Robinson, Jon, Planning Intern, City of Winters

Valenzuela, Glenn, Community Development Director, City of Winters

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CHAPTER II

HOUSING

INTRODUCTION

Under the requirements of state law, every city and county in California must prepare a housing element as part of its general plan. The housing element must document in detail existing conditions affecting housing development and housing needs. Responding to these requirements, this chapter profiles Winters' existing housing stock, assesses existing and projected needs, analyzes resources available to meet these needs, and reviews governmental and non-governmental constraints on the production of affordable housing. Statistical data on population and housing characteristics is derived primarily from the California Department of Finance (DOF) and the U.S. Census Bureau. In some cases, the most recent source of data is the 1980 U.S. Census.

HOUSING STOCK

Housing Stock Growth and Composition

Between the years 1980 and 1991, the number of dwelling units (DUs) in Winters grew from 981 to 1,608, an increase of 63.9 percent. As shown in Table II-1, the housing growth rate fluctuated dramatically during the 1980-1991 period. The average annual rate of growth for this eleven year period was 5.3 percent.

During this eleven year period, as shown in Table II-1 and Figure II-1, Winters grew about twice as fast as Woodland, Davis, Yolo County, and California.

TABLE II-1

ANNUAL HOUSING GROWTH RATES
Winters, Woodland, Davis, Yolo County, California
1980-1991

	Winters		Woodland		Davis		Yolo County		California	
Year	DUs	% Change	DUs	% Change	DUs	% Change	DUs	% Change	DUs	% Change
1980	981		11,251		14,558		43,605		9,279,338	
1981	985	0.4	11,585	3.0	14,868	2.1	44,507	2.1	9,429,595	1.6
1982	988	0.3	11,673	0.8	15,568	4.7	45,551	2.3	9,550,249	1.3
1983	1,076	8.9	11,757	0.7	15,681	0.7	45,858	0.7	9,632,790	0.9
1984	1,109	3.1	12,032	2.3	16,009	2.1	46,639	1.7	9,753,180	1.2
1985	1,132	2.1	12,221	1.5	16,457	2.7	47,411	1.7	9,935,299	1.9
1986	1,208	6.7	12,618	3.3	16,737	1.8	48,565	2.4	10,164,677	2.3
1987	1,304	7.9	13,085	3.7	17,504	4.6	49,874	2.7	10,414,425	2.5
1988	1,379	5.8	14,041	7.3	17,871	2.1	51,319	2.9	10,708,254	2.8
1989	1,588	15.2	14,620	4.1	18,387	2.9	52,750	2.8	10,966,024	2.4
1990	1,639	3.2	14,935	2.2	18,148	-1.3	52,989	0.5	11,206,393	2.2
1991	1,608	-1.9*	15,019	0.6	18,277	0.7	53,790	1.5	11,337,525	1.2
Total Increase 1980 to 1991										
	627	63.9	3,768	33.5	3,719	25.5	10,185	23.4	2,058,186	22.2
Average Compound Annual Increase 1980 to 1991										
		5.3		2.9		2.2		2.2		2.4

* Reflects adjustment made by DOF based on the 1990 U.S. Census.

Sources: California Department of Finance; U.S. Census Bureau

Table II-2 demonstrates that Winters' housing stock continues to be dominated by single family homes, with the proportion of dwelling types remaining essentially unchanged between 1980 and 1991. For the majority of the 11 year period more than 75 percent of the housing stock consisted of single family homes. In 1980 over 77 percent of Winters' dwellings were single family homes; in 1990 single family homes accounted for 75.8 percent. In 1990 dwellings in groups of two to four units accounted for 8.7 percent, developments of five or more units accounted for 11.9 percent, and mobile homes accounted for 3.6 percent. The percentage of mobile homes declined from a high of 6.0 percent in 1981 and 1982 to 3.6 percent in 1990.

TABLE II-2

NUMBER AND TYPE OF DWELLING UNITS
City of Winters
1980 to 1991

	Total	Single Family	% of Total	2-4 Units	% of Total	5+ Units	% of Total	Mobile Homes	% of Units
1980	981	758	77.3	93	9.5	74	7.5	56	5.7
1981	985	759	77.1	93	9.4	74	7.5	59	6.0
1982	988	762	77.1	93	9.4	74	7.5	59	6.0
1983	1,076	764	71.0	93	8.6	157	14.6	62	5.8
1984	1,109	792	71.4	98	8.8	157	14.2	62	5.6
1985	1,132	815	72.0	98	8.7	157	13.9	62	5.5
1986	1,208	894	74.0	98	8.1	157	13.0	59	4.9
1987	1,304	978	75.0	110	8.4	157	12.1	59	4.5
1988	1,379	1,047	75.9	110	8.0	163	11.8	59	4.3
1989	1,588	1,192	75.1	142	8.9	195	12.3	59	3.7
1990	1,639	1,243	75.8	142	8.7	195	11.9	59	3.6

Source: California Department of Finance; U.S. Census Bureau

FIGURE II-1

ANNUAL HOUSING UNIT GROWTH RATES
1980 to 1991

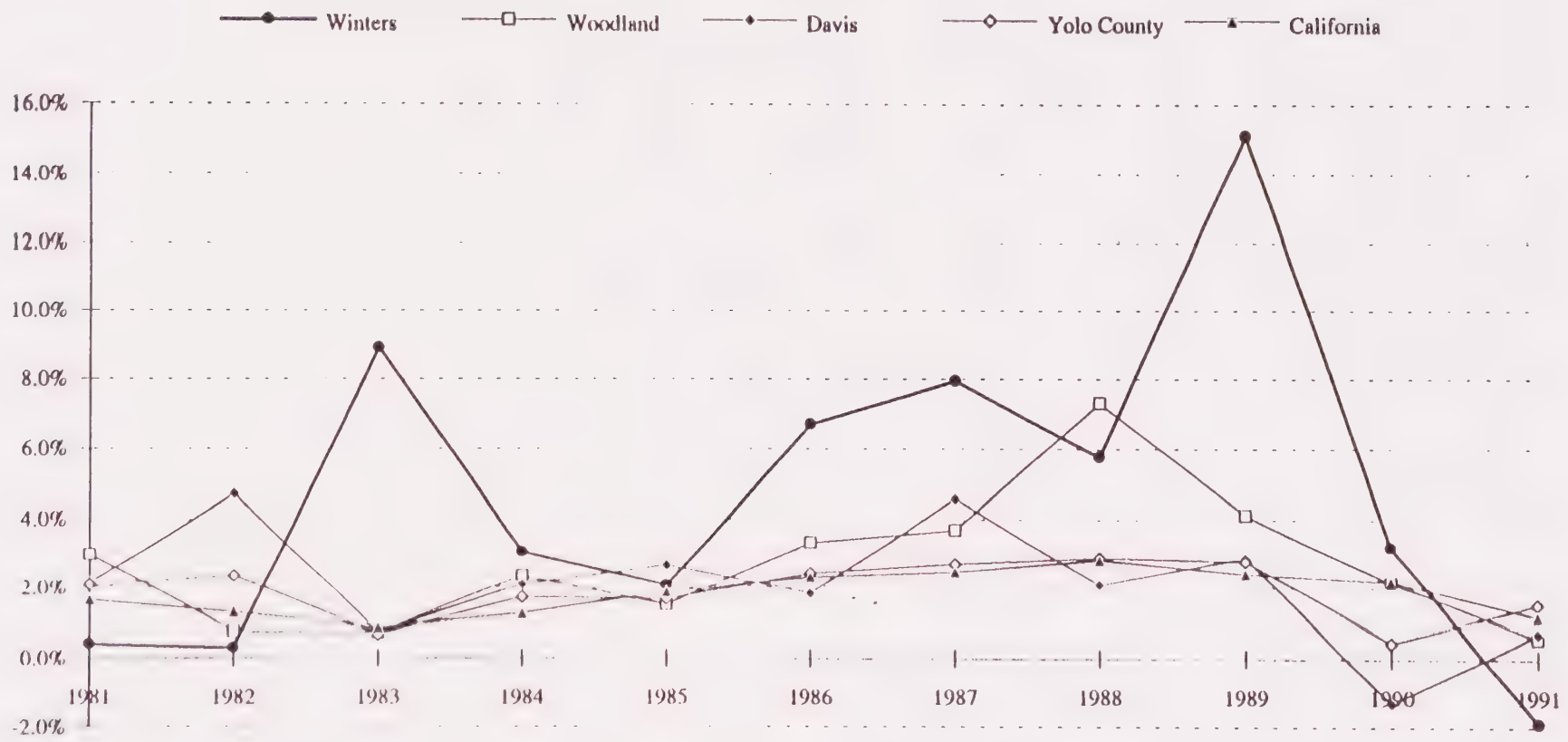

Table II-3 compares Winters' population, household, and housing stock growth between 1980 and 1991. As indicated in the table, the rate of population growth has substantially exceeded the growth rate of both households and housing units.

TABLE II-3

POPULATION, HOUSEHOLDS, AND HOUSING UNIT GROWTH
City of Winters
1980 to 1991

	POPULATION		HOUSEHOLDS		HOUSING UNITS	
Year	No.	% Change	No.	% Change	No.	% Change
1980	2,652		929		981	
1981	2,648	-0.2	934	0.5	985	0.4
1982	2,656	0.3	938	0.4	988	0.3
1983	2,954	11.2	1,027	9.5	1,076	8.9
1984	3,064	3.7	1,086	5.7	1,109	3.1
1985	3,149	2.7	1,111	2.3	1,132	2.1
1986	3,320	5.4	1,179	6.1	1,208	6.7
1987	3,606	8.6	1,278	8.4	1,304	7.9
1988	3,791	5.1	1,336	4.5	1,379	5.8
1989	4,189	10.5	1,480	10.7	1,588	15.2
1990	4,545	8.5	1,608	8.6	1,639	3.2
1991	4,778	5.1	1,548	-3.9*	1,608	-1.9*
Total Increase 1980 to 1991		80.2		66.6		63.9
Average Compound Annual Increase 1980 to 1991		5.50		4.75		5.07

* Reflects adjustments made by DOF based on the 1990 U.S. Census.

Sources: California Department of Finance, 1981-1991

Housing Tenure

Tenure refers to the distinction between owner and renter-occupied dwelling units. Table II-4 describes the tenure characteristics of Winters in 1990. It should be noted that the numbers in the table reflect occupied dwelling units only, and do not include vacant units which may be for rent or sale.

In 1990, 67.7 percent of the occupied dwellings were owner occupied, a much higher percentage than for either Yolo County (51.9 percent) or California (55.6 percent).

TABLE II-4

HOUSING TENURE
Winters, Yolo County, and California
1990

	Occupied Rentals	% of Total	Occupied Ownership	% of Total
Winters	487	32.3	1,019	67.7
Yolo County	24,526	48.1	26,446	51.9
California	4,607,263	44.4	5,773,943	55.6

Source: U.S. Census Bureau, 1990

Table II-5 describes tenure and occupancy by type of unit in 1990 and indicates the percentage of units which were renter-occupied and owner-occupied in 1990.

TABLE II-5

TENURE AND OCCUPANCY BY UNIT TYPE
City of Winters
1990

Unit Type	Total Units	Total Occupied	% of Units Renter-Occupied	% of Units Owner-Occupied
SF Detached	1,155	1,109	17.1	82.9
SF Attached	73	67	62.7	37.3
Duplex	63	62	96.8	3.2
Triplex/Fourplex	26	26	100.0	0.0
MF, 5 or more units	138	137	99.3	0.7
Mobilehome	95	92	27.2	72.8

Source: U.S. Census Bureau, 1990

Vacancy Rates

The vacancy rate of a community is both an indicator of unused housing stock and a measure of consumer opportunity for mobility and choice in living accommodations. A rule of thumb provided by the California Department of Housing and Community Development (HCD) is that an overall vacancy rate of 4.0 to 5.0 percent in urban areas indicates a market reasonably well balanced between supply and demand. In areas where there is a significant number of second homes and seasonal units there should be a higher vacancy rate. In Winters there is not a large number of seasonal units.

The gross vacancy rate as tabulated by the U.S. Census is a measure of vacant year-around units as a percentage of the total stock of year-around housing units. According to the 1990 Census, 58 of the 1,564 year-round housing units were vacant, a rate of 3.7 percent. Of the 58 vacant units, 23 were for sale (39.7 percent), 10 were for rent (17.3 percent), and 25 (43.2 percent) were neither for sale nor rent. Vacancy rates are typically highest for rental units. The Census excluded units open to the elements or condemned, as well as units used entirely for non-residential uses; this explains the discrepancy between the unit total used for calculation of vacancy and the 1980 total used in Tables II-1 and II-2.

The California Department of Finance (DOF) annually estimates gross vacancy rates for every city and county in the state. Table II-6 summarizes vacancy rates for Winters and Yolo County for the years 1981 to 1991. While it would be useful to know how current vacancy rates vary annually by unit type, tenure, and cost, this information is not readily available.

As shown in Table II-6, the vacancy rate in Winters fluctuated widely between 1981 and 1991, unlike the Yolo County vacancy rate which remained relatively constant, while declining slightly in recent years. A comparison of the vacancy rates shown in Table II-6 with the Annual Housing Growth Rate table (Table II-1) reveals that the period of highest vacancy (6.8 percent) occurred in 1989, at the same time the largest increase (15.2 percent) occurred in the housing stock.

TABLE II-6

VACANCY RATES
Winters and Yolo County
1981 to 1991

Year	Winters	Yolo County
1981	5.08%	5.67%
1982	5.06%	5.87%
1983	4.55%	5.94%
1984	2.07%	5.00%
1985	1.77%	4.69%
1986	2.40%	3.63%
1987	1.92%	3.72%
1988	3.05%	3.89%
1989	6.80%	3.60%
1990	1.89%	3.26%
1991	3.73%	3.14%

Source: California Department of Finance

Overcrowding

An overcrowded housing unit is defined as one in which more than one person per room (excluding bathrooms and kitchens) reside. According to the 1990 Census, 12.7 percent (i.e., 191 units) of Winters' occupied housing units were overcrowded. This was higher than either the countywide rate of 8.8 percent or the statewide rate of 9.7 percent. Of the 191 overcrowded units in Winters, 94 were owner occupied and 97 were renter occupied.

Population Per Household

The California Department of Finance (DOF) provides annual estimates of population per household for every city and county in the state. Table II-7 shows DOF estimates for Winters and Yolo County for the years 1980 through 1991. While Winters has a higher population per household than the county, the population per household in both Winters and the county remained relatively constant through 1990. DOF estimates for 1991 reveals a sizeable increase in Winters' average household size, perhaps reflecting adjustments based on 1990 U.S. Census data.

According to the Sacramento Area Council of Governments (SACOG), household size is projected to decline from its current level of 3.09 to 2.73 by the year 2010. Similarly, according to the Department of Finance, the county's household population is projected to decline to 2.53 by the year 2005.

TABLE II-7

POPULATION PER HOUSEHOLD
Winters and Yolo County
1980 to 1991

Year	Winters	Yolo County
1980	2.855	2.595
1981	2.832	2.577
1982	2.832	2.563
1983	2.876	2.593
1984	2.821	2.554
1985	2.832	2.551
1986	2.816	2.517
1987	2.819	2.512
1988	2.835	2.529
1989	2.830	2.521
1990	2.826	2.536
1991	3.087	2.628

Source: California Department of Finance

Housing Age and Condition

In large part, housing conditions are a function of the age of the units. It is likely that many of Winters' housing units are in need of at least some repair, if only because of the age. As shown in Table II-8, in 1980, 40 percent of the city's housing stock had been constructed before 1940, and 74.3 percent of the units had been constructed prior to 1960, and were more than 20 years old. By comparison, the percentage of Yolo County's housing stock built prior to 1940 was only 12 percent, and the percentage built prior to 1960 was 42.0 percent.

Winters has had very few housing demolitions and very few conversions of housing to non-residential uses. However, if one were to assume that five percent of the units built before 1940, as shown in the U.S. Census, have been demolished or converted since 1980, 41.7 percent of the 1990 housing would be nearing 30 years old and 22.5 percent would be 50 or more years in age. Units of this age are likely to need some sort of rehabilitation merely because of the limited life expectancy of many of the materials used in their construction.

The city's older dwellings are concentrated in the area generally bounded by Grant Avenue, Elliott and Second Streets, and Putah Creek. These older units were constructed in accordance with building standards which were much less stringent than those in existence today, and, as a result, many contain substandard wiring, plumbing, heating, and foundations.

TABLE II-8

HOUSING STOCK AGE
Winters, Yolo County and California
1980

Year Constructed	Winters		Yolo County		California	
	DUs	% Change	DUs	% Change	DUs	% Change
Before 1940	388	40.0	5,029	12.0	1,359,258	14.7
1940-1949	88	9.1	3,387	8.1	1,128,858	12.2
1950-1959	244	25.2	9,147	21.9	2,026,341	22.0
1960-1969	140	14.5	11,002	26.3	2,201,843	23.9
1970-1979	108	11.2	13,265	31.7	2,506,820	27.2

Source: U.S. Census Bureau.

A windshield survey of structural conditions within the Winters' proposed Redevelopment Project Area was conducted in June 1991 by Piedmont Associates in conjunction with the City's proposed redevelopment project. While the redevelopment area does not include all structures within the city limits (see Figure I-7), it does contain most of the city's older residential areas. As such, this survey provides useful information with which to assess the condition of a large portion of Winters' housing stock.

The housing survey rated structures on a scale of 1 to 4 as follows:

Numerical Rating	Description of Condition
1.	Sound structural condition.
2.	Lack of maintenance or other non-structural problems, including need of minor repair work (painting, etc.), or extensive rehabilitation (re-roof, dry-rot repair, etc.)
3.	Unsafe or unhealthy to occupy, but economically feasible to rehabilitate.
4.	Unsafe and unhealthy to occupy, but beyond the point where restoration is economically feasible.

The Redevelopment Project Area contains 662 single and multi-family structures which contain 940 housing units, 42.3 percent of Winters' total housing stock as of the 1990 U.S. Census.

Table II-9 provides a summary of the windshield survey results, including both the number counted and the percentage of the total for each structure type (i.e., single family or multi-family). As shown in Table II-9, 3.2 percent of all housing structures in the redevelopment area were given a rating of 4 and 19.4 percent were rated 3 or worse.

TABLE II-9

STRUCTURAL CONDITIONS OF HOUSING WITHIN THE REDEVELOPMENT PROJECT AREA
June 1991

	Structural Rating				
	1	2	3	4	Total
Single family	169 (29.0%)	301 (51.7%)	93 (16.0%)	19 (3.3%)	582
Multi-family	42 (52.5%)	22 (27.5%)	14 (17.5%)	2 (2.5%)	80
Totals	**211 (31.9%)**	**323 (48.8%)**	**107 (16.2%)**	**21 (3.2%)**	**662**

Source: Piedmont Associates, June 1991

Income Limits

The income limits established by U.S. Department of Housing and Urban Development (HUD) for Yolo County in 1991 are presented in Table II-10. Very low-income families are defined as those earning 50 percent of median family income or less; low-income families are defined as those earning between 50 and 80 percent of median family income; and moderate-income families are defined as those earning between 80 and 120 percent of median family income.

TABLE II-10

INCOME LIMITS BY HOUSEHOLD SIZE
1991

Income Category	NUMBER OF PERSONS IN FAMILY 1 Person	2 Person	3 Person	4 Person
Very Low (50% of median)	$13,900	$15,900	$17,850	$19,850
Low (80% of median)	22,250	25,400	28,600	31,750
Median*	27,800	31,750	35,750	39,700
Moderate (120% of median)*	33,350	38,100	42,900	47,650

Note: *These figures are derived from published HUD figures.

Source: U.S. Department of Housing and Urban Development

Housing Costs

The cost of housing has become an increasingly critical issue in California. Since the late 1970s, the statewide housing market has experienced dramatic price increases. Many housing markets in California (particularly in the Bay Area and Southern California) have seen rapid inflation of housing costs because of increasingly limited supplies of land suitable (or available) for residential development. Because of the vast amount of undeveloped land available in the lower Sacramento Valley, housing in the Sacramento region has remained relatively inexpensive compared to the larger urban areas.

In the late 1980s, however, Winters and Yolo and Solano Counties began to experience pressure to develop housing to accommodate Bay Area and metropolitan Sacramento area commuters who move to the area for its affordable housing and more rural lifestyle. The increased demand for housing and higher incomes of these commuters have led to rising housing prices in Winters.

Records of home resale prices are not complete for the Winters area. However, figures provided by the Northern Solano County Association of Realtors show a gain of 14.7 percent in the median resale price between October 1989 and October 1990. According to the Association, the average price of a residence sold in the Winters area was $129,000 in October 1989, and $148,000 in October 1990. By comparison, during that same period, the statewide median price decreased from approximately $190,000 to 188,220.

The median price of a single-family home in the Sacramento area as of December 1990 was $133,950 (source: California Real Estate Trends Newsletter, January 1991).

As shown in Table II-11 for the years 1989 and 1990, the vast majority of homes sold in the area for which the Northern Solano County Association of Realtors has records were in the $100,000 to $200,000 range. In 1990, the percentage of homes sold in that range increased, while the percentage of homes in the lower price range (under $100,000) declined significantly.

TABLE II-11

RESIDENTIAL SALES PERCENTAGE BY PRICE RANGE

Price Range	1989	1990
$49,999 and under	2.0	0.7
$50,000-99,999	21.2	5.7
$100,000-199,999	69.4	82.9
$200,000-399,999	6.7	9.9
$400,000 and over	0.6	0.9

Source: Northern Solano County Association of Realtors

A review of real estate listings in the *Winters Express* between August 1991 and March 1992 reveal that the average asking price for a two-bedroom home in Winters was $121,667, $163,876 for a three-bedroom home, and $186,392 for a four-bedroom home.

A review of rental listings in the *Winters Express* for the same period revealed that the average advertised rent for a two-bedroom apartment in Winters was approximately $570, $700 for a duplex, $715 for a two-bedroom home, and $835 for a three-bedroom home.

Overpayment

Overpayment is defined as paying 25 percent or more of one's income for housing. According to the California Department of Housing and Community Development's methodology for calculating overpayment, 173 of Winters' 296 lower income (below 80 percent of the county median) households were overpaying for housing in 1980. This represented 58.6 percent of the city's lower income households. Of those households overpaying 71 were renters and 102 were homeowners, representing 51.0 and 65.3 percent of the city's low-income renters and owners respectively.

According to a November 1989 study by the California Association of Realtors (CAR), 36 percent of the households in the Sacramento area could afford to buy the median-priced home, whereas only 19 percent of the households statewide could. These figures were down from 46 percent and 21 percent for Sacramento and California, respectively, for 1988.

Table II-12 shows the number and percentage of lower income households overpaying for housing in 1980.

TABLE II-12

HOUSING OVERPAYMENT
BY LOWER INCOME HOUSEHOLDS
Winters, Yolo County, and California
1980

	Renters		Owners		Total	
	No.	% Households	No.	% Households	No.	% Households
Winters	71	51.0	102	65.3	173	58.4
Yolo Co	8,606	81.6	1,659	51.8	10,265	74.6
Calif.	1,409,713	83.8	368,620	52.5	1,778,333	74.6

Source: U.S. Census Bureau, 1980

HOUSING NEEDS

Winters' Fair Share of Projected Regional Housing Needs

According to housing element law, each jurisdiction must forecast or project in its housing element the number of new housing units that need to be constructed to serve the needs of all income groups of the projected population. To assist cities and counties, the state has assigned each council of government the responsibility for determining the existing and projected needs of its region through the preparation of a *Regional Housing Needs Plan (RHNP)*. The *RHNP* provides cities and counties with a measure of their share of the region's projected housing needs by household income group over the five-year planning period of each jurisdiction's housing element. The *RHNP* also identifies and quantifies existing housing needs for each jurisdiction.

The *Regional Housing Needs Plan for the SACOG Region*, was prepared by the Sacramento Area Council of Governments (SACOG) and adopted in June 1990. This plan assessed housing needs for the period from January 1, 1989, to July 1, 1996, and supersedes the 1984 SACOG *RHNP*, which covered the period from January 1, 1983 to July 1, 1990.

According to the SACOG *Housing Needs Plan*, to meet its "fair share" of regional housing needs, Winters needs to develop 521 new housing units by 1996. Table II-13 describes Winters' "fair share" of regional housing needs for the period 1989 to 1996.

TABLE II-13

HOUSING NEEDS BY INCOME CATEGORY
City of Winters
January 1, 1989 to July 1, 1996

Income Category	Existing Housing 1989	Housing Needed 1996	1989-96 Increase	1989-96 % Increase	Basic Construction Need
Very Low Income (- 50% of County Median)	428	541	113	22.6	118
Low Income (50 -80% of County Median)	225	312	87	17.4	91
Moderate Income (80 -120% of County Median)	295	402	107	21.4	112
Above Moderate Income (+120% of County Median)	532	724	192	38.5	200
Totals	**1,480**	**1,979**	**499**	**100.0**	**521***

*Includes allowances for vacancies and normal market removals.

Source: *Regional Housing Needs Plan for the SACOG Region*, adopted June, 1990. SACOG

Between January 1, 1989, through July 1, 1991, Winters approved building permits for 100 new units. All of these were single family units and, based on City building permit records, appear to have been affordable only to those with above-moderate incomes. Accordingly, Winters' remaining fair share need is 421 units for the period July 1, 1991, through July 1, 1996.

Special Needs

Beyond the general housing needs documented above, state law requires that the housing element include an assessment of the housing needs of special groups within the community, including those of the disabled, the elderly, large families, farmworkers, families with female heads of household, and families and persons in need of emergency shelter and transitional housing.

Disabled Persons

The term" disabled" refers to a disability (physical, mental, or sensory) which prevents or precludes a person from doing work either in or outside of the home. A person with a work disability may have a health condition which limits the kind of work he or she can do or which prevents working at a job or business entirely. A work disability may also be defined as a health condition which limits the choice of employment.

The number of disabled persons in a community has important implications for the provision of certain social services, in the removal of barriers to facilities, and in developing housing which has specialized access for disabled residents.

According to the 1980 Census, 9.9 percent of Winters' work force (ages 16 to 64) had work disabilities. Of those identified as having a work disability and not in the labor force, 5.7 percent stated that they were prevented from working and 2.7 percent of those with disabilities remained in the work force. One and one-half percent of those identified as disabled and not in the labor force were not entirely prevented from working. Table II-14 shows work disability status for Winters, Yolo County, and California.

TABLE II-14

WORK DISABILITY STATUS BY PERCENTAGE
Winters, Yolo County, and California
1980

	Winters	Yolo County	California
With Work Disability in Labor Force	2.7	2.9	3.2
Not In Labor Force			
Prevented from Working	5.7	3.8	4.1
Not Prevented	1.5	1.0	.9
Total with Work Disability	9.9	7.7	8.2
No Work Disability	90.1	92.3	91.8

Source: U.S. Census Bureau, 1980

The 1980 Census has also identified those residents with public transportation disabilities. A public transportation disability is a health condition that makes it difficult or impossible to use buses, trains, subways, or other forms of public transportation. As indicated in Table II-15, in 1980, 2.4 percent of Winters' population over age 16 had a transportation disability. Of those aged 16 to 64, 1.2 percent had such disabilities, and 9.2 percent of those city residents over age 65 had public transportation disabilities. Compared with Yolo County and California, Winters' residents in this age group had a higher ability to use public transportation.

TABLE II-15

PUBLIC TRANSPORTATION DISABILITY BY AGE GROUP BY PERCENTAGE
Winters, Yolo County, and California
1980

	Winters	Yolo County	California
16 to 64 with Disability	1.2	1.3	1.7
16 to 64 without Disability	98.8	98.7	98.3
65 and over with Disability	9.2	14.2	15.4
65 and over without Disability	90.8	85.8	84.6
16 and over with Disability	2.4	2.6	3.4
16 and over without Disability	97.6	97.4	96.6

Source: U.S. Census Bureau, 1980

Special needs of disabled persons vary depending upon the particular disability of the person. For example, the needs of a blind person differ greatly from those of persons confined to wheelchairs. Special facilities such as ramps, elevators, or specially designed restrooms necessary for wheelchair access are architectural features needed to make dwellings suitable for wheelchairs. Special features needed by ambulatory persons constrained by other disabilities may not be architectural. Instead, these might be simple alterations to conventional dwelling units for furnishing and appliances which make ordinary tasks of housekeeping and home life simpler. In families, the needs of the disabled person, in terms of special features, are fewer than those of a single person. Nevertheless, a disabled person in a family does have special needs. Special architectural features could be valuable in giving this person a greater independence, dignity, and quality of life.

Elderly

In 1990, Winters had a lower percentage of senior citizens than both the county and the state. The 1990 Census indicated that 11.9 percent of the city's population (i.e., 550 persons) was 60 years or older, and 8.8 percent (i.e., 407 persons) was 65 years of older. These percentages are lower than Yolo County, where 12.8 percent of the population was over age 60 and 9.5 percent was over age 65, and California which had 14.2 percent of the population over age 60 and 10.5 percent over age 65.

In terms of occupied housing units, 18.8 percent of occupied housing units in the city (i.e., 284 units) were occupied by person age 65 or older. Of these 284 units, 226 were owner occupied and 58 were renter occupied.

Table II-16 compares Winters' elderly households with those of the county and state.

TABLE II-16

ELDERLY HOUSEHOLDS BY PERCENTAGE
Winters, Yolo County, and California
1990

	Winters	Yolo County	California
Age 60 and over	11.9	12.8	14.2
Aged 65 and over	8.8	9.5	10.5

Source: U.S. Census Bureau, 1990.

Housing costs since 1980 have escalated rapidly, making housing costs a very high proportion, and in some instances all, of an elderly person's Social Security Insurance payment. Many senior citizens live on fixed incomes and have limited resources for maintenance and rehabilitation. In addition, senior citizens who are long-term residents of rental units often experience substantial rent increases when their building is sold. Elderly residents in these circumstances often find themselves unable to locate comparable accommodations at an affordable price in the city and are forced to relocate to a new, unfamiliar community--an event which is frequently traumatic and debilitating.

For those retired and on fixed incomes, the costs of homeownership, particularly maintenance, generally constitute a much larger portion of monthly income than that of employed homeowners. Consequently, needed maintenance is often deferred, resulting in unpleasant, or sometimes unsafe living conditions. In some instances home maintenance costs can be overwhelming, necessitating sale and relocation after many years of attachment to friends and neighbors in the area.

The increased longevity of elderly people and the increasing number of elderly in the population will result in an increasing need for affordable housing and specialized housing for older residents (especially low- and moderate-income elderly) such as congregate care, life care services and group care facilities. There is a need not only to preserve for future generations the housing stock currently occupied by senior citizens but also to ensure that elderly residents are able to remain in safe and comfortable surroundings.

Winters has no housing developments intended solely for senior citizens, although there is currently (April 1992) a proposal before the City to build 48 units of very-low-income senior housing subsidized by the Farmer's Home Administration's 515 Program. The City is expected to approve the project in Spring or Summer 1992, and construction is expected to begin in FY 1993-94.

Large Families

Family size is an important consideration when it comes to planning for housing. Very simply, areas which have large concentrations of small families or single-person households need to plan for smaller units, and areas with concentrations of large families need to assure that units large enough to accommodate such families are available. Unfortunately, however, information concerning family size is difficult to gather. The 1990 Census provides some minimal data on the number of persons occupying housing units, but does not correlate this information with information on the number of rooms in the units. The Census indicated that 8.0 percent of Winters' 1990 occupied housing units had six or more residents, higher than Yolo County at 4.2 percent and California, which had 7.0 percent.

As discussed in a previous section, large families suffer disproportionately from overcrowded housing, and while a majority of large families are homeowners, those who rent face a very limited supply of large apartments. Statewide, according to the *California Statewide Housing Plan (Phase I)*, only 12 percent of very large renter households have successfully competed for large units.

Farmworkers

According to the California Human Development Corporation (CHDC), in 1990 there were 4,800 farmworkers in Yolo County. It is difficult to assess the precise needs of farmworkers in Winters because specific data on the number of farmworkers in a community is not yet available from the U.S. Census (i.e., Census Summary Tape File 3). There is, however, anecdotal information on farmworker needs in the Winters area available from social service organizations in Yolo County.

Yolo County Housing Authority (YCHA) owns and operates farm labor housing located just east of Interstate 505, on Road 32 outside of Winters. The housing is called El Rio Villa and was constructed in 1936 by HUD as farm labor housing for both permanent and migratory workers. Over the years, the original units have been replaced. In early 1992, an 18-unit reconstruction project was completed by YCHA, bringing the total number of units at El Rio Villa to 126 duplex and fourplex rental units. These units house 330 persons. According to YCHA, approximately 90 percent of the units are occupied by families employed in farm-related industries. Rental cost is 30 percent of family income. YCHA maintains a waiting list for El Rio Villa, and currently there are 209 families from the Winters/Esparto area on the list.

Another source of information on farmworker needs in the Winters area is the County homeless facility. According to Yolo Wayfarer Center, a homeless facility located in Woodland, there were approximately 100 persons from the Winters area seeking shelter at the facility in 1991. Of these 100 persons, approximately 50 persons identified themselves as farmworkers.

Based on information provided by Yolo County social service organization, there appears to be a shortage of affordable housing available to farmworkers in the Winters area. While Yolo County has recently expanded their services for farmworkers in the Winter area, there appears to still be unmet need. Generally, farmworker households that cannot be accommodated at County facilities must compete for the limited supply of lower-income housing in Winters and surrounding communities.

Families Headed by Single Females

The 1990 Census reported that 7.4 percent of Winters' households (i.e., 111 households) were headed by single females with one or more children under the age of 18. If 1980 statistics are an indicator of 1990 conditions, then it is probable that a majority of these single-female households with children were below

the poverty level. According to the 1980 U.S. Census (1990 data are not available), 62.5 percent of female-headed households with children were below poverty. Countywide, 5.7 percent of all households were headed by single female parents. Of these, 37.8 percent were below the poverty level in 1980.

The *California Statewide Housing Plan (Phase I)* identifies the following distinguishing characteristics for female householder families:

- Low homeownership rate
- Younger householder
- Children present
- Low incomes and a high poverty rate
- Overcrowded
- High percentage of household income spent for housing

Low and moderate income women in the housing market, especially single parents, face significant difficulties finding and maintaining housing. Housing affordability is a primary issue because frequently only one income is available to support the needs of the household--and only a limited amount of funds can be allocated to housing. While some of these households may find housing assistance through the Section 8 Rental Assistance Program, many others are victims of high rent and/or overcrowded conditions. Although there is a continuing need for affordable rental housing for small families, there is also a need for shared housing and group living alternatives where single-parent families can share not only space but child care and other resources as well.

Persons Needing Emergency Shelter and Transitional Housing

Throughout California and nationwide, homelessness has become a major concern. Factors contributing to the increase in homeless persons and families, and those in need of transitional housing, include:

- The lack of housing affordable to very-low- and low-income persons
- Increases in unemployment or underemployment
- Reductions in government subsidies
- Deinstitutionalization of the mentally ill
- Domestic violence
- Drug addiction
- Dysfunctional families

The housing needs of homeless persons are more difficult to measure and assess than those of any other population subgroup. Since these individuals have no permanent addresses, they are not likely to be counted in the census, and since they are unlikely to have stable employment, the market provides few

housing opportunities. The 1990 Census reported that there were no homeless persons visible in street locations in the city of Winters in 1990. Nonetheless, homelessness in Yolo County is addressed on a countywide basis, and anecdotal information from county social service organizations indicates that there may be a homeless population in the Winters area.

Winters has participated since 1990 in a three-year joint agreement (due to end June, 1993) with the cities of Davis, Woodland, West Sacramento, and Yolo County. The agreement provides for homeless coordination by the Yolo County Department of Social Services' Homeless Coordinator, and for cold weather shelter provided at various locations throughout Yolo County. The joint agreement provides for cost shares, based on population. Winters paid $500 in FY 1990/91, $851 in FY 1991/92, and is anticipated to participate in FY 1992/93 in the amount of $1,204.

The Homeless Coordination effort attempts to provide comprehensive services to homeless people, including day services such as showers, laundry, mail, telephone, counseling, and financial aid referrals; food services such as nightly meals, and grocery bag distributions; and shelter. All services are provided on a county-wide basis, so that any person meeting income guidelines is eligible. In addition, the County provides transitional housing and motel vouchers. The strategy behind the coordination effort recognizes that it is difficult for any one city to provide a full range of homeless services for its population, but that by working together in a coordinated effort, social service agencies in Yolo County can provide comprehensive services for all homeless persons in Yolo County.

In 1991, homeless shelters in Yolo County served approximately 2,000 homeless, and in a report entitled *Yolo County Homeless Conference Report*, the number of homeless persons in Yolo County was estimated to be 800 persons per month, of which 460 are children. Of the 2,000 persons served each year, approximately 100 were from Winters who stayed at the Yolo Wayfarers Center in Woodland. The shelter program includes use of a sleeping bag and cot, shower, and includes a breakfast meal. Accommodations are provided on a first-come first-served basis, and there is no limit to the number of nights a person may utilize the shelter. According to a spokesman, occupancy averaged at least 15 persons every night in 1990 (source: Personal Communication, Cathy Tucker).

In October 1990, the Yolo County Social Services Department conducted a conference on the issue of homelessness. This conference, lead by the Yolo County Homeless Coordinator, was conceived as a follow-up to the first homeless conference held in September 1988. The purpose of the October conference was to review accomplishments since the first conference, review available services, and to identify barriers to serving the most difficult homeless persons.

From the conference, the following description of the typical homeless person was developed:

> *The overall portrait that emerged was of the following person: A dual diagnosis client (both mentally ill and chemically dependent); one who had used up all available services; one who was denied services because of past misuses; a single person who is abusive, anti-social and unable to work with advocate and/or social workers.*

Although homeless persons are usually not part of a group, there are instances of family groups.

The conference identified the following methods of addressing the needs of the homeless:

- More creative case management and flexible case management that could adapt to the needs of the client;

- Improved education of caseworkers in order to better understand the wide range of client needs;
- Greater access to treatment facilities;
- Improved follow-up services;
- Relaxing licensing standards/requirements to provide a greater number of less expensive transitional houses, board and care type living units and treatment centers;
- Adoption of a "coaching" method of case work support, teaching people how to work within the system and receive all benefits to which they are entitled;
- Funding;
- Improved coordination between the criminal justice system, health system and educational systems.

AVAILABILITY OF LAND AND SERVICES FOR RESIDENTIAL DEVELOPMENT

Land

The City of Winters currently (April 1992) has a sizable supply of vacant land within its city limits to accommodate a broad range of housing types. Table II-17 summarizes the remaining vacant land within the city limits and its theoretical residential dwelling unit potential. The table includes several non-residential zoning districts in which residential uses are permitted. The theoretical residential potential was calculated by multiplying the individual lot areas by the minimum lot area required by the applicable zoning district. While this methodology significantly overstates the effective or likely development potential, the table shows that Winters has ample sites within its current city limits to accommodate its "fair share" of regional housing need (421 units by 1996), not only in total, but also by income category.

The zoned hold capacity described above will change significantly based on the revised *General Plan* adopted in May 1992. Following adoption of the *1992 General Plan*, the City's *Zoning Ordinance* will be revised and various areas will be rezoned consistent with the new plan.

The residential holding capacity of the *1992 General Plan* is summarized in Table II-18. It should be noted that Table II-18 does not include possible density bonuses or potential units that could be developed under the CBD, Office, and Neighborhood Commercial designations.

TABLE II-17

VACANT LAND WITH RESIDENTIAL POTENTIAL
Winters - 1991

Zoning District	Total Acreage	Total Potential Units
R-1-6000	24.97	175
R-1-7500	18.08	103
R-1-P-D	0.78	5
R-2	66.93	1,931
R-3	24.91	720
R-3-P-D	37.35	1,084
R-3/M-1	100.00	290
R-4	3.10	119
R-4/R-3	2.21	96
P-R	22.09	3
C-1	2.75	79
C-S	5.71	0
C-H	17.23	495
C-H-P-D	7.54	218
C-H-P-D/M-P	6.10	86
M-P	14.97	0
M-1	11.65	0
Total	**366.37**	**5,404**

Source: City of Winters Community Development Department, October 1991.

TABLE II-18

RESIDENTIAL HOLDING CAPACITY
1992 General Plan

Land Use Designation	Density Range[1]	Total Acreage	Potential Units[2]
Rural (RR)	0.5 - 1.0	50.00	50
Low Density (LR)	1.1 - 4.0	104.22	417
Medium Density (MR)	4.1 - 6.0	361.05	2,166
Medium High Density (MHR)	6.1 - 10.0	76.73	767
High Density	10.1 - 20.0	31.01	620
Total		**623.02**	**4,020**

[1]Dwelling Units per gross acre

[2]Calculated at top of density range

Source: City of Winters; J. Laurence Mintier & Associates

Services

The availability of the various public facilities and services to support residential development is discussed in detail in Chapter VI. Public Facilities and Services. The findings of Chapter VI are summarized below.

Water

The City of Winters owns and operates its own water system, which relies on groundwater. According to the City's *Water System Master Plan* (May 1992), the groundwater supply should be adequate to serve buildout of the *1992 General Plan* (12,500 population by the year 2010). Nonetheless, the City is pursuing a water conservation program to reduce per capita demand and exploring the acquisition of surface water rights to reduce its dependence on groundwater. The City's existing system is relatively easily expanded by drilling new wells and installing distribution lines. While there are currently (1992) some deficiencies in the existing system, these are ultimately not significant constraints and will be addressed through remedial measures recommended in the *Water System Master Plan*.

Sewage Collection, Treatment and Disposal

The City owns and operates its own wastewater collection and treatment system. According to the City's *Sewer System Master Plan* (May 1992), the City's existing treatment facilities are nearing capacity. Without further modifications, the existing facilities could accommodate an estimated 488 more homes. However, with the addition of another 40 acre-foot pond, the treatment facilities could accommodate 815 more homes (including the 488 homes above). The expansion of the existing plant should be completed during FY 92-93. With this modification, the existing treatment facilities will be at their design capacity. The City is planning to eliminate the existing plant and construct an entirely new plant, which is scheduled for completion by June 1995. The new plant will be designed with more than enough capacity to serve buildout of the *1992 General Plan* (12,500 by the year 2010).

While there are currently (1992) some deficiencies in existing collection facilities, these are ultimately not significant constraints and will be addressed through remedial measures recommended in the *Sewer System Master Plan*.

Drainage/Flooding

Winters is subject to both localized and regional flooding problems. The City's *Storm Drainage Master Plan* (May 1992) proposes improvements to address existing system deficiencies and improvements to address the localized drainage problems associated with new development. A bigger drainage problem is regional flooding associated with Chickahominy and Moody Sloughs which affects much of the northern area within the 20-year Urban Limit Line. The *1992 General Plan* commits the City to undertaking a study in FY 92-93 to address this regional flooding problem.

Pending completion of the study and identification of a funding mechanism to finance a comprehensive flooding solution, the area contributing to or affected by the 100-year flooding problem is designated in the General Plan as a Flood Overlay Area and will be subject to interim land use controls (See Figure II-2).

Some residential development lying within the Flood Overlay Area may be able to proceed as soon as the flood study has been completed and the City has enacted a funding mechanism to finance the comprehensive flooding solution. Some residential development, however, may not be able to proceed

until most flood control measures are implemented. In any event, regional flooding is not expected to be a constraint on residential development after about 1993 or 1994.

Schools

The Winters Joint Unified School District provides educational services to residents of the city and surrounding areas of Yolo and Solano Counties. The District operates six facilities, including a kindergarten, an elementary school, a junior high school, a high school, a continuation high school, and an agricultural site. The District currently operates at above-capacity. The *1992 General Plan* commits the City to working with the School District to ensure there is adequate mitigation of school impacts and the school capacity is expanded in a timely fashion.

Summary

Winters' fair share housing need for the period July 1, 1991, to July 1, 1996 is 421 units. This need is allocated to income category as follows: 118 units for very-low income; 91 units for low income; 112 units for moderate income; and 100 units for above-moderate income. As Table II-18 indicates, the *1992 General Plan* has a residential holding capacity of 4,020 units, not including density bonus units or potential units in commercial designations. Of course, not all of this capacity is immediately available. The key determinates of when all this capacity becomes available are developer/property owner motivation, annexation procedures, and the timing of sewer and drainage improvements.

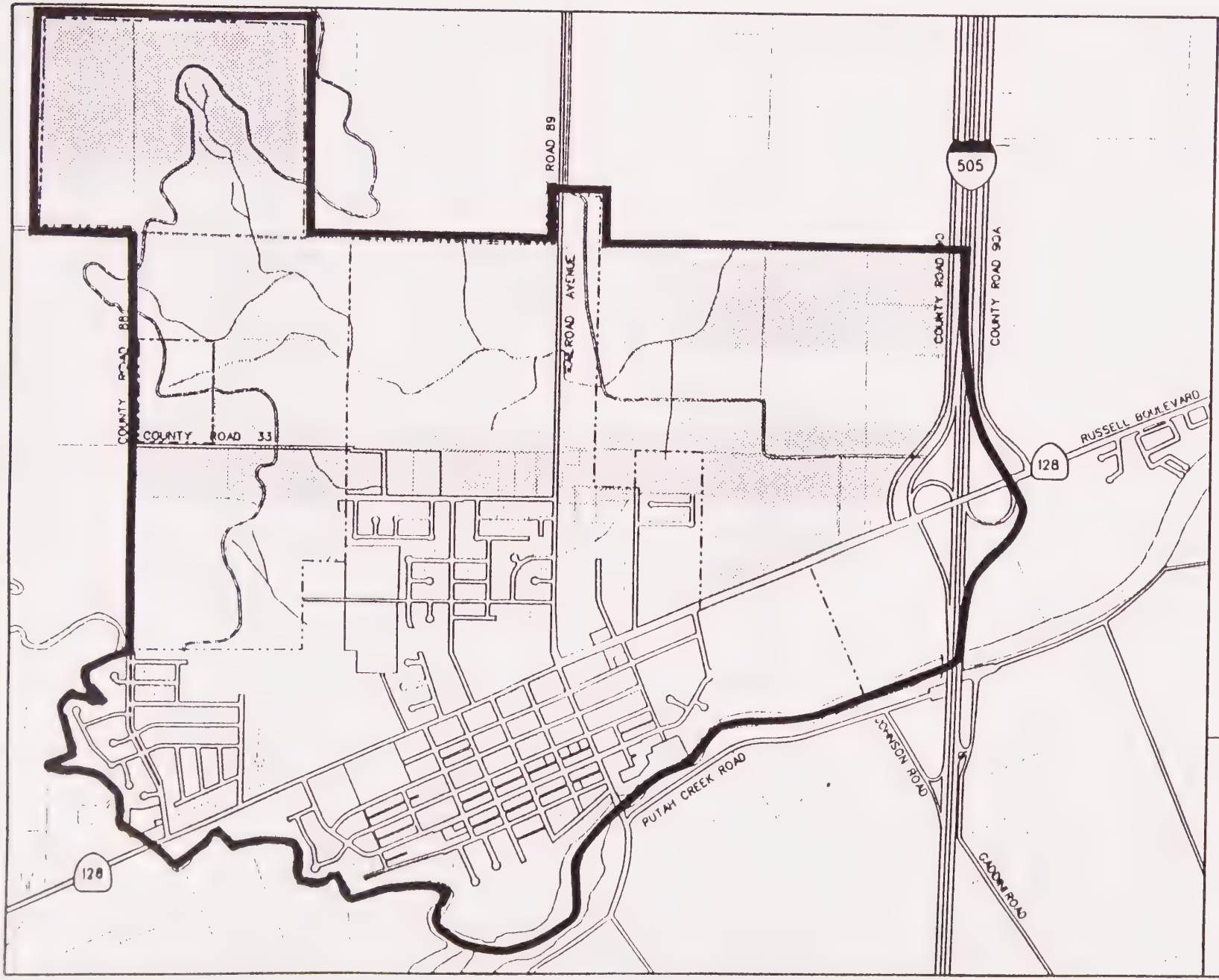

FIGURE II-2
FLOOD OVERLAY AREA

Flood Overlay Area

City Limits

Urban Limit Line

CITY OF WINTERS

N

0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

Table II-19 shows a breakdown of the holding capacity in Table II-18 by its incorporated/unincorporated status and its location inside/outside the Flood Overlay Area. As the table shows, about a quarter of the potential dwelling units (1,004) are immediately developable. Indeed, the City began processing several projects prior to the *General Plan*'s adoption in May 1992. Another 564 units could be developed immediately following annexation. As soon as a regional flooding solution is identified and the City adopts a funding mechanism, many, if not most, of the remaining 1,152 units within city limits could be developed. The balance of the units (1,300) would require annexation before they are developed.

TABLE II-19

RESIDENTIAL LAND AVAILABILITY
BY LAND USE DESIGNATION
1992 General Plan

		Inside City Limits		Outside City Limits		
Residential Designation[1]		**Outside FOA[2]**	**Inside FOA[2]**	**Outside FOA[2]**	**Inside FOA[2]**	**Totals**
Rural (RR)	AC	-	-	-	50.00	50.00
	DU	-	-	-	50	50
Low Density (LR)	AC	21.70	45.00	20.52	17.00	104.22
	DU	87	180	82	68	417
Medium Density (MR)	AC	132.03	68.41	65.36	95.25	361.05
	DU	792	410	392	572	2,166
Medium High Density (MHR)	AC	4.73	19.00	-	53.00	76.73
	DU	47	190	-	530	767
High Density (HR)	AC	3.92	18.59	4.50	4.00	31.01
	DU	78	372	90	80	620
Totals	AC	**162.38**	**151.00**	**90.38**	**219.25**	**623.01**
	DU	**1,004**	**1,152**	**564**	**1,300**	**4,020[3]**

[1] Land use designations in the *1992 General Plan*.
[2] FOA = Flood Overlay Area.
[3] Does not include possible density bonuses or potential units under the CBD, Office, and Neighborhood Commercial designations.

Source: City of Winters; J. Laurence Mintier & Associates, May 1992.

The other service constraint is sewer treatment capacity. As discussed above, with modifications planned for the existing treatment facilities in FY 92-93, the City would have capacity to serve an additional 815 more homes. By June 1995, the City expects to complete construction of an entirely new treatment plant which will accommodate full buildout of the *1992 General Plan*.

In summary, well before the end of the Housing Element time frame (i.e., July 1, 1996), virtually all of the land designated for residential development by the *1992 General Plan* could be incorporated, appropriately zoned, free of sewer and drainage constraints, and available for residential development. This holding capacity is more than adequate to accommodate the City's "fair share" of regional housing need, not only in total, but also by income category.

GOVERNMENTAL CONSTRAINTS ON THE PRODUCTION OF HOUSING

While local governments have little influence on such market factors as interest rates, their policies and regulations may have a constraining effect upon the free operation of the housing market. For the most part, local regulations play a legitimate role in protecting the public's health, safety, and welfare. In a similar regard, fees charged for services, including the processing of land use entitlement applications, are generally based on the costs of providing necessary services.

In some cases, however, local regulations, fees, and processes may restrict the operation of the housing market unnecessarily. Examination of the local regulatory structure can identify those areas of potentially excessive regulation and reveal where steps can be taken to remove or minimize obstacles to residential development.

Discretionary land use control in Winters is exercised by the Planning Commission and City Council, and administered by the Community Development Department in accordance with the *General Plan* and Title VIII of the *Municipal Code* (i.e., Zoning and Land Development). These documents are described below and also in Chapter I, Land Use, of the *General Plan Background Report*.

General Plan

The *1992 General Plan*, adopted in May 1992, provides for exclusive residential use in five land use designations. These designations are described below.

- Rural Residential (RR): This designation provides for single-family detached homes, secondary residential units, limited agricultural uses, public and quasi-public uses, and similar and compatible uses. Residential densities ranging from 0.5 to 1.0 units per gross acre are allowed in this designation.

- Low Density Residential (LR): This designation provides for single-family detached homes, secondary residential units, public and quasi-public uses, and similar and compatible uses. Residential densities ranging from 1.1 to 4.0 units per gross acre are allowed in this designation.

- Medium Density Residential (MR): This designation provides for single-family detached and attached homes, public and quasi-public uses, and similar and compatible uses. Residential densities ranging from 4.1 to 6.0 units per gross acre are allowed in this designation.

- Medium High Density Residential (MHR): This designation provides for single-family detached and attached homes and multi-family residential units, group quarters, quasi-public uses, and similar and compatible uses. Residential densities ranging from 6.1 to 10.0 units per gross acre are allowed in this designation.

- High Density Residential (HR): This designation provides for single-family attached homes and multi-family residential units, group quarters, public and quasi-public uses, and similar and compatible uses. Residential densities ranging from 10.1 to 20.0 units per gross acre are allowed in this designation. New residential development at densities less than 10.1 dwelling units per gross acre is deemed compatible, but is subject to discretionary review and approval.

In addition to the above designations, the *General Plan* also permits residential uses in three commercial and office designations. These land use designations are described below:

- Neighborhood Commercial (NC): This designation provides for neighborhood and locally-oriented retail and service uses, offices, multi-family residential units above the ground floor, public and quasi-public uses, and similar and compatible uses. All residential uses are subject to discretionary review and approval. Residential densities ranging from 6.1 to 10.0 units per gross acre are allowed in this designation.

- Central Business District (CBD): This designation provides for restaurants, retail, service, professional and administrative offices, hotels, multi-family residential units, public and quasi-public uses, and similar and compatible uses. All residential uses are subject to discretionary review and approval. Residential densities ranging from 10.1 to 20.0 units per acre are allowed in this designation.

- Office (OF): This designation provides for professional and administrative offices, medical and dental clinics, laboratories, financial institutions, multi-family residential units, public and quasi-public uses, and similar and compatible uses. Residential uses in this designation shall be subject to discretionary review and approval. Residential densities ranging from 6.1 to 10.0 units per gross acre are allowed in this designation.

Residential uses are allowed at densities from two acres per unit (i.e., Rural Residential) to 20 units per gross acre (i.e., High Density Residential). In addition, the City provides for a density bonus of 25 percent pursuant to state law, which if applied to the maximum density allowed in the city (i.e., 20 units per gross acre) results in a density of 25 units per gross acre. This range of densities can accommodate various housing types and affordability levels and is, therefore, a positive contribution to the provision of housing in Winters.

The *1992 General Plan* includes a policy (II.A.4) which provides that "the City shall seek to maintain an overall mix of 75 percent single family and 25 percent multi-family in its housing stock." Recognizing that housing for lower-income households is more likely to be developed as multi-family rental housing, the policy goes on to say "that this policy shall not be implemented in such a way that it would operate as a constraint on the City's ability to meets its regional fair share allocation for housing for very-low and low-income households." This could be accomplished very simply by the City approving substantially more units between 1991 and 1996 than the City's total fair share of 421 units.

Zoning

In accordance with State law, cities and counties have broad latitude in establishing zoning standards and procedures. Outside of a general requirement for open space zoning and several special requirements governing residential zoning, State law establishes only broadly the scope of zoning regulation and sets minimum standards for its adoption and administration. One key requirement, however, is that zoning be consistent with the general plan.

The Winters *Zoning Ordinance*, originally adopted June 12, 1969 (re-codified 1982) has been amended on several occasions, in many instances to reflect changes in the Winters *General Plan*.

Zoning Districts

Following are brief summaries of the zoning districts in the current (1992) Winters *Zoning Ordinance*. These summaries outline only general standards and are provided for reference only. The *Zoning*

Ordinance itself should be consulted for specific questions regarding permitted and conditionally permitted uses, and other development standards.

- A-1, Agricultural, for range land, field crops, orchards, greenhouses and single-family dwellings, requiring a minimum lot size of two and one-half acres;

- R-1, Single-Family Residential, with three sub-classes:

  R-1-6000, requiring a minimum lot size of 6,000 square feet (7,000 for corner lots),

  R-1-7500, requiring a minimum lot size of 7,500 square feet (8,500 for corner lots), and

  R-1-9000, requiring a minimum lot size of 9,000 square feet (10,000 for corner lots);

- R-2, Two-Family Residential, for mixed areas of single-family dwellings and duplexes, requiring a minimum lot area per duplex unit of 3,000 square feet (duplexes on corner lots require 7,000 square feet in total area);

- R-3, Medium Family Residential, for multiple-family dwellings, requiring a minimum lot area per unit of 1,500 square feet on a building site of at least 7,000 square feet;

- R-4, High Density Residential, requiring a minimum lot area per dwelling unit of 1,000 square feet on a building site of no less than 6,000 square feet;

The *Zoning Ordinance* provides for numerous accessory and conditional uses for each of the districts and special provisions for parking, special setbacks, signage, "bungalow court" development, and the use of the Planned Development (P-D) overlay. Small, family day care operations (up to six non-residing children) are freely allowed in residential areas, while larger day care facilities, home occupations, public and quasi-public facilities (schools, churches, meeting halls, etc.) and off-street parking are permitted as conditional uses. The *Zoning Ordinance* contains many limitations and provisions relating to the areas abutting the boundaries between different classifications, such as between residential and commercial districts, and suggests that the R-2 classification is intended to assist in buffering single-family areas from commercial areas and major streets. Multiple-family dwellings, as permitted in the R-4 zone classification, are also allowed in both the C-1 and C-2 areas. A separate section in the ordinance regulates condominium conversions. The Planned Development (P-D) overlay may be applied as a conditional use in combination with any zone classification on parcels of at least ten acres in size, for the purpose of increased efficiency, flexibility and integration of differing uses, and as a means of meeting General Plan objectives. Density increases up to 10 percent may also be permitted.

Immediately following the adoption of the *1992 General Plan*, the City will be revising its *Zoning Ordinance* to achieve consistency with the new *General Plan*. Among the changes envisioned is an increase in the minimum lot area per unit in the R-4 District from 1,000 square feet per unit to somewhere around 2,175 to 2,000 square feet per unit consistent with 20 units per gross acre.

Density Bonus

The City's *Zoning Ordinance* contains provisions that allows increased density for residential projects that include a minimum percent of affordable units. The City's *Zoning Ordinance* currently (May 1992) provides a density bonus of 25 percent, or two other incentives, for developers who build 25 percent of their project for lower income.

As of January 1, 1990, state law requires that a density bonus of 25 percent and one other concession (e.g., fee waiver or priority processing) be granted to developers who build 20 percent (not 25 percent) of their units for lower-income households, 10 percent for very-low-income households, or 50 percent for low-income elderly households. State law now also requires developers to guarantee continued affordability for lower- and very-low-income units for at least 30 years. Therefore, the City's density bonus provision, as it is currently written, does not comply with these new state standards as set out in *Government Code §65913.4* and *§65915*. As such, this provision in the *Zoning Ordinance* constitutes a governmental constraint on the production of affordable housing in Winters. This provision will be revised, however, in conjunction with the comprehensive *Zoning Ordinance* revision in FY 91-92, 92-93.

Property Development Regulations

Table II-20 shows a summary of residential development regulations for the City of Winters.

TABLE II-20

SUMMARY OF RESIDENTIAL DEVELOPMENT REGULATIONS
City of Winters

Zoning District	Minimum Lot Area Per Dwelling	Combined Side Yard Setbacks	Front and Rear Yard Setback	Second Units Allowed
A-1	2-1/2 acres	50 feet	50 feet	No
R-1-6,000	6,000 s.f.	10 feet	25 feet	Yes
R-1-7,500	7,500 s.f.	15 feet	25 feet	Yes
R-1-9,000	9,000 s.f.	15 feet	25 feet	Yes
R-2	3,000 s.f.	10 feet	25 feet	No
R-3	1,500 s.f.	12 feet	20 feet	No
R-4	1,000 s.f.	12 feet	10 feet	No

Source: City of Winters Zoning Ordinance

These development regulations are not excessive and do not, therefore, constitute a constraint on the development of affordable housing in Winters.

Second Dwelling Units

The *Zoning Ordinance* conditionally permits second dwelling units in all R-1 districts on lots with an existing single-family dwelling. All R-1 development standards apply, and no minimum lot size is required beyond that required for the district where the second unit is to be built. The maximum floor area of the second unit shall not exceed 640 square feet of living area. In addition to the two parking spaces required for the principal residence, one parking space is required for the second unit. These requirements for second unit development are typical, except that they are less restrictive than in most cities in that they require no additional lot area beyond that required for a single-family residence in the

district. As such these requirements placed on the construction of second units do not constitute a constraint on the production of affordable housing in Winters.

Architectural Review

Architectural approval of roof overhang, roofing material, roof pitch, and siding material is required for all residential development on R-1 lots for the purpose of protecting the architectural theme of the exiting neighborhood. Review and approval for architectural conformance is performed by the Building Inspector and is based on conformity of the proposed residential design to the design of neighboring residences. While architectural review does add to the time and expense of residential development, it serves an important purpose for the City. Furthermore, because review is performed by the Building Inspector, without public review, the requirement does not constitute a constraint on the production of affordable housing in Winters.

Parking Requirements for Residential Uses

With the exception of multi-family residential uses developed in conjunction with commercial and office uses in Downtown, all residential uses are required to provide on-site parking. The number of parking spaces required is dependent on the type of residential use, as follows:

- Single-family and two-family residential: 2 parking spaces for each unit;
- Multi-family residential: 1-1/2 parking spaces for each unit;
- Community care facilities for the elderly: 1 parking space for each 4 beds;
- Rooming houses: 1 parking space for each 2 guest rooms or 4 beds for guests.

These parking requirements are not excessive and therefore do not constitute a constraint on the production of affordable housing in Winters.

Historic Preservation

The City of Winters adopted an historic preservation ordinance in 1985 establishing a Historic Preservation Commission and establishing a procedure for designating historic landmarks and districts. To date, one district, Historic District One, has been created in Winters which covers approximately a one-block area along Main Street plus City Hall. The ordinance requires a certificate of approval by the Historic Preservation Commission for any new construction or alteration or moving of an existing structure. Approval of the certificate is based upon the compatibility of exterior design, arrangement, texture, and material which is proposed for the structure and its relationship to other structures in the district. Due to the small area currently effected by the historic preservation ordinance, historic preservation does not constitute a constraint on the development of affordable housing in Winters.

Building and Housing Codes

Building and housing codes establish minimum standards and specifications for structural soundness, safety, and occupancy. The State Housing Law requires cities and counties to adopt minimum housing standards based on model industry codes. The City relies on the following uniform codes: *Uniform Building Code*, *Mechanical Code*, *Uniform Plumbing Code*, and *Code for Abatement of Dangerous*

Buildings, and *National Electrical Code*. The City has not adopted amendments to these uniform codes that operate as a significant constraint on the production of housing.

Code enforcement for existing buildings focuses primarily on nuisance abatement and condemnation of unsafe structures. Cities and counties pursue code enforcement in several ways, including:

- Complaint-Response: The City may inspect buildings for deficiencies only upon receipt of complaints by neighbors or tenants.

- Change of Occupancy for Rental Properties: A city may issue occupancy permits that require inspection and code compliance at time of turnover.

- Systematic: Code enforcement on a systematic basis with provision for financial assistance is especially appropriate in areas where strong and supportive neighborhood groups exist, the majority of homes are owner-occupied, housing is relatively sound, and income levels are moderate-income or above.

- Pre-Sale and "Truth in Sale": Pre-sale enforcement would require code inspection and violation abatement prior to sale of a home. A "truth in sale" ordinance would require information concerning code violations, zoning status, and property taxes to be provided to the buyer.

- Concentrated Code Enforcement: Code inspections may be conducted on a systematic basis through certain areas or for specific properties (such as rental or multi-unit residences).

The City's enforcement activities are divided among three responsibility groups: new construction, maintenance, and nuisance abatement. New construction enforcement, as its name implies, applies to new buildings or construction projects for which building permits are required. Maintenance enforcement applies primarily to commercial and industrial projects and is conducted in conjunction with the granting of business licenses. Nuisance abatement is generally conducted on a "complaint-response" basis and typically concerns such problems as unsanitary conditions and unsafe structures.

Primarily because of the lack of adequate replacement housing, the City has not been aggressive in its efforts to enforce housing-related codes as they apply to existing buildings.

Permit Processing Fees

State law requires that permit processing fees charged by local governments not exceed the estimated actual cost of processing the permits. Table II-21 lists fees charged by the City of Winters for the processing of various land use permits. Included in the table for comparison are fees charged in Woodland and Yolo County for similar applications. As shown, in almost every application process, Winters' fees are lower than those of the other jurisdictions.

TABLE II-21

PLANNING FEES
Winters, Woodland, and Yolo County
December 1990

Process	Winters/[1]	Woodland	Yolo County/[4]
Conditional Use Permit	$220	$ 554	$ 301
Zoning Amendment	$350	$1,337	
Variance	$220	$ 424	$ 559
General Plan Amendment	$500	$1,564	$3,278
Planned Development Zoning	$350		$ 130
Initial Study (Environmental Review)	$ 80	$ 598	$ 76
Negative Declaration	$170	$ 335	$ 285
Environmental Impact Report	$500	$1,000[5]	$3,611
Tentative Parcel Map (Subdivision-4 lots or less)	$175[2]	$1,112	$ 427
Tentative Subdivision Map (Subdivision-5 or more lots)	$350[3]	$2,380[7]	$ 746
Lot Line Adjustment	$175[6]	$ 195	$ 97
Site Plan Review	$150[5]	$ 938	$ 62

[1] Plus staff time billed at a rate of $50.00 per hour and Consultant costs.
[2] Plus $30.00 per lot.
[3] Plus $5.00 per lot.
[4] These are fees charged to individuals. Business/Corporate fees are higher. Where two fees are indicated for the same process, those requiring Planning Commission action are shown.
[5] Plus $5.00 per 1,000 square feet in excess of 6,000 square feet.
[6] For 2 lots. $30.00 for each additional lot.
[7] Plus $22.00 per lot.
[8] Plus $43.00 per hour after 16 hours.

Sources: Community Development Departments of Winters and Woodland, and Yolo County Development Agency

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Permit Processing Procedure and Times

The timelines within which the City processes the various permits and applications necessary for residential development can affect the overall cost of housing. The minimum processing time for residential development project applications in Winters is determined by state requirements for environmental review and public notice and by the meeting schedules of the Planning Commission and

the City Council. The maximum time for processing residential development permits is set by state law (*Government Code §65929 et seq.*). The statutory time limit for completion of environmental review and approval or denial of a permit application starts when an application is accepted by the lead agency (i.e., the City) as complete. The lead agency then has one year in which to approve or disapprove a project for which an EIR will be prepared, or six months for projects for which no EIR is prepared.

The first step in the application process following payment of fees is staff review of the application for completeness. Once the application is deemed to be complete, it is reviewed by appropriate City staff, including the Development Review Committee which consists of staff from the following departments: Community Development, Public Works, Fire, Police, City Engineer, and City Attorney. Following staff analysis, the application is scheduled for review before one or more of the city committees or commissions described below.

City Council - Approves all final maps and hears appeals of Planning Commission decisions. Meets twice per month.

Planning Commission - Reviews plans and conditions of approval on all projects, affirms or modifies other commission recommendations, and submits final recommendations to the City Council for final subdivision maps, and as requested by the Council. Meets monthly.

Streets and Trees Commission - Makes recommendations to the Planning Commission concerning street design, landscaping, lighting and fence design along streets of proposed subdivisions. Meets monthly.

Parks and Recreation Commission - Makes recommendations to the Planning Commission concerning park dedication requirements in subdivision applications. Meets monthly.

The City attempts to process residential development applications in the shortest time possible, given the requirements for environmental review, public notice, and the schedules of decision-making bodies.

Table II-22 shows typical permit processing times for the City of Winters.

TABLE II-22

TYPICAL PERMIT PROCESSING TIMES
City of Winters
1992

Type of Application	Estimated Approval Time Period (Following Formal Acceptance)
General Plan Amendment	24 Weeks
Rezoning	24 Weeks
Use Permit	5 Weeks
Variance	5 Weeks
Building Permit	2-3 Weeks
Design Review (staff level)	30 Days
Design Review	5 Weeks
Planned Development	24 Weeks
Minor Subdivision (Tentative Map)	24 Weeks
Major Subdivision (Tentative Map)	52 Weeks
Minor Subdivision (Final Map)	Variable
Major Subdivision (Final Map)	Variable

Source: City of Winters

Development Fees

Table II-21 summarizes the development fees currently (1990) charged in Winters for residential subdivisions. Winters charges a fee of $3,740 per lot created in a subdivision exclusive of refuse, tree, and school fees. That fee is allocated to the various City services as indicated in Table II-23.

TABLE II-23

DEVELOPMENT FEES
City of Winters
December 1990

Fee Type/Allocation	Cost
New Lot Fees[1]	
Water (33%)	$1,234
Sewer (25%)	935
Storm Drainage (10%)	374
Streets (10%)	374
Parks (10%)	374
Buildings (10%)	374
Community Center (2%)	75
Total	**$3,740**
Refuse Fee	100
Street Tree Fee	25[2]
School Impact Fee[3]	$1.58 per square foot of residential dwelling

[1]Fee for single family detached and multi-family applies to first mobile home pad. Additional pads are charged $3,140 per unit
[2]$50 per lot for corner lots
[3]Levied by Winters Joint Unified School District

Source: Winters Community Development Department

In conjunction with the revision of the *General Plan* in 1992, the City of Winters is revising its development impact fee schedule. This revision is based on a comprehensive assessment of infrastructure improvements needed to meet the demands of full buildout of the General Plan.

According to preliminary information, combined City development fees and building permit fees will run about $12,000 for a single family dwelling (medium density). In addition, County development fees and school fees currently being studied may run as high as $12,000 for a single family dwelling. If all contemplated fees are enacted, the total fee package for a single family dwelling would run about $24,000. The total fee package for a multi-family dwelling would likely run about a third less.

These fees may constitute a constraint on the development of affordable housing. To address this possible constraint, the City has committed to developing a fee deferral program to assist in the development of housing for very-low- and low-income households.

On- and Off-Site Improvements

Land improvements include both on-site and off-site improvements. In Winters, on-site improvements for residential construction include 16-foot driveways, parking areas, landscaping for both single- and multi-family housing, and the installation of water meters. Public off-site improvements include public

rights-of-way ranging from 32 feet in width without parking to 50 feet in width with parking on both sides. Other off-site improvement in Winters include street trees every 25 feet, undergrounding of utilities, drainage facilities, and bike lanes for collector and arterial streets.

All of these improvements add to the cost of housing but are deemed necessary to maintain the public health, safety, and welfare standards for a residential community. Street trees are a cost not always required of developers, but the savings in residential energy usage afforded to the homeowner by the trees probably outweighs the upfront cost of installing the trees. Accordingly, on- and off-site improvements do not constitute a constraint on the development of affordable housing in Winters.

NONGOVERNMENTAL CONSTRAINTS ON THE PRODUCTION OF HOUSING

The availability of housing is strongly influenced by market factors over which local government has little or no control. State law requires that the housing element contain a general assessment of these constraints. This assessment can serve as the basis for actions which local governments might take to offset the effects of such constraints. The primary market constraints to the development of new housing are the costs of constructing and purchasing new housing. These costs can be broken down into four categories: materials, labor, land, and financing. Winters can be considered as part of a very broad general housing market that includes the lower Sacramento Valley area. For the most part, housing cost components in Winters are comparable to those in other parts of the general market area. The following paragraphs briefly summarize these components vis-a-vis the local market and the statewide market.

Construction Costs

Construction cost is typically expressed as a combination of material and labor costs and do not include the cost of land, site improvements, landscaping, permit costs, or profit. Material and labor costs are discussed below.

Material Costs

A major component of the cost of housing is the cost of building materials, such as wood and wood-based products, cement, asphalt, roofing materials, and plastic pipe. Prices for these goods are affected primarily by the availability and demand for such materials.

Because the lower Sacramento Valley is served by such a well-developed regional transportation network and because many of the materials needed for construction are produced in the region, availability of materials is excellent. The demand for building materials is also very high because there is so much housing development occurring in the area. The result of the combination of excellent supply and high demand is a very competitive market and, therefore, relatively low prices. In addition, the land in Winters which is most likely to be developed in the future for housing is well-suited for the kind of large projects which allow developers to realize economy-of-scale savings on materials.

The costs of building materials in the lower Sacramento Valley in general and in Winters in particular are relatively low and, therefore, do not constitute a constraint to the development of affordable housing.

Cost of Labor

Another major cost component of new housing is labor. Inflated labor costs due to high wage rates significantly increase the overall cost of housing in some markets. Labor costs in Winters are competitive with those in the Sacramento metropolitan area, but generally lower than the San Francisco Bay Area.

Total Construction Costs

Based on telephone conversations with major residential developers in Winters, total construction costs for basic single family construction in Winters runs approximately $50 per square foot in 1992.

Land Costs

Costs associated with the acquisition of land include the market price of raw land and the cost of holding land throughout the development process. These costs can account for as much as half of the final sales prices of new homes in very small developments or in areas where land is scarce. Among the variables affecting the cost of land are its location, its amenities, the availability of public services, and the financing arrangement made between the buyer and seller.

Because of the abundant availability of relatively inexpensive farmland in the area, land costs in the lower Sacramento Valley housing market area are generally low.

Land costs vary significantly in accordance with a variety of factors, including proximity of urban services. In June 1991, raw land not readily accessible to public infrastructure was selling for approximately $18,000 to $20,000 per acre. This price applies to land beyond the City's sphere of influence and may also apply to certain land within the Winters' Urban Limit Line. In-fill parcels within the city limits and close to all necessary infrastructure are currently selling for between $40,000 and $50,000 per acre (source: personal communication, Morton Vanden Bergh).

Cost and Availability of Financing

The cost and availability of capital financing affect the overall cost of housing in two ways: first, when the developer uses capital for initial site preparation and construction and, second, when the homebuyer uses capital to purchase housing.

The capital used by the developer is borrowed for the short-term at commercial rates, which are considerably higher than standard mortgage rates. Commercial rates nonetheless drop when the overall market rates decrease, so low interest rates have a positive effect on the housing construction market. According to local developers, construction financing is readily available for single-family construction. Construction financing is difficult to obtain, however, for multi-family construction, due to general market conditions not unique to Winters. This lack of construction financing for multi-family housing poses a significant constraint on the production of affordable housing in Winters.

The homebuyer uses capital financing in the form of long-term mortgage loans. Market rates for standard fixed-rate home loans were about 9.0 percent in April 1992. Mortgages are generally available for the purchase of single-family homes throughout Winters, and no neighborhood in Winters shows visible signs

of financial disinvestment by banks or other lending institutions. Table II-24 shows how the variation in interest rates affects the buyer's monthly mortgage payments on a range of loan amounts.

TABLE II-24

MONTHLY MORTGAGE PAYMENTS

Interest Rate (%)	Original Loan Amount $70,000	$80,000	$90,000	$100,000	$150,000
9.0	$ 563	$ 644	$ 724	$ 805	$ 1,207
9.5	589	673	757	841	1,261
10.0	614	702	790	878	1,316
10.5	640	732	823	915	1,372
11.0	667	762	857	952	1,428
11.5	693	792	891	990	1,485
12.0	$ 720	$ 823	$ 926	$ 1,029	$ 1,543

Note: Based on a 30-year, fixed-rate mortgage, not including real estate taxes and home insurance. These costs add about 2 percent of the sales price annually.

Source: J. Laurence Mintier & Associates

Table II-25 relates loan rates to home loan affordability at various income levels. The figures in the table are based on principal and interest equaling 25 percent of the gross income and do not include taxes and insurance, which could add approximately 15 percent to the monthly payment. Most lenders, however, are qualifying buyers somewhere between 29 and 36 percent of total income. Table II-25, therefore, provides only a rough estimate of loan affordability.

TABLE II-25

INCOME/LOAN AMOUNT AFFORDABILITY

Interest Rate	Annual Income $20,000	$25,000	$30,000	$35,000	$ 40,000	$ 45,000	$50,000
9%	$51,560	$63,550	$77,500	$89,600	$103,200	$116,000	$128,000
10%	47,480	59,349	71,219	83,089	94,959	106,829	118,699
11%	43,753	54,691	65,629	76,567	87,505	98,443	109,382
12%	40,503	50,635	60,761	70,888	81,015	91,142	101,269
13%	37,667	47,083	56,500	65,916	75,333	84,750	94,166
14%	$35,166	$43,957	$52,748	$61,450	$ 70,331	$ 79,122	$87,914

Source: National Association of Home Builders

Table II-26 shows the typical costs associated with buying a home.

TABLE II-26

TYPICAL HOUSING COSTS
($175,000 Home)

Sales Price	$175,000
Closing Costs	5,537
Down Payment @ 20%	35,000
Mortgage Balance	140,000
Annual P&I @ 10.25% (30 years)	15,054
Insurance*	542
Taxes*	2,012
Total Annual Carrying Costs	17,608
Income Needed @ 30% of Gross)	$70,432

Source: J. Laurence Mintier & Associates

Note: *Varies with jurisdiction

PUBLICLY-OWNED SURPLUS LAND

There is currently (1992) no publicly-owned, surplus land in Winters suitable for housing.

RESIDENTIAL ENERGY CONSERVATION

Residential energy conservation measures can take two forms: those applied to the construction of new housing and those added to existing housing to increase energy efficiency (retrofitting).

State law requires local governments to implement energy conservation standards for all new residential development. Under these requirements, every new residential building constructed must meet rigorous building standards for heat gain and heat loss. In mandating these requirements, the state has largely preempted the authority of local governments to regulate building construction with respect to energy conservation.

Pacific Gas & Electric Company (PG&E) sponsors various energy conservation programs, including the Direct Weatherization Program for low-income residents and T-Cap, a program for replacing outdated furnaces for elderly residents. In addition to these programs, PG&E also provides free energy audits for all their customers.

CURRENT AND PAST HOUSING PROGRAMS IN WINTERS

Redevelopment

In 1990, the Winters Community Development Agency proposed a redevelopment project for certain portions of the city, as authorized by *California Community Redevelopment Law* (*Health and Safety Code §33000 et seq.*). The redevelopment plan, entitled City of Winters *Community Development Project Area*

Plan, which is scheduled for completion in mid-1992, will serve as both an enabling document and as guidelines for Agency decisions regarding development and redevelopment of properties within the Project Area. The Plan will help authorize and finance Agency projects related to public infrastructure improvements, community facilities, and other support projects, all with the purpose of eliminating "blighted conditions" and "blighting influences," as defined in by state redevelopment law. The Plan will also direct 20 percent of its budget to develop affordable housing in the community based on a plan to be developed pursuant to new requirements in state law.

Yolo County Housing Authority

The Yolo County Housing Authority (YCHA) owns 413 public housing units and manages over 200 additional units in Yolo county under a variety of housing assistance programs, including the Department of Housing and Urban Development (HUD) Section 8 Certificate (Voucher) program, HUD 236, 211, and 233 programs, YCHA-assisted housing, and conventional housing projects. Housing assistance programs operated by YCHA are available to low-income (80 percent of median income) households. Federal requirements further stipulate that 95 percent of the units must be available to persons of very-low income (50 percent of median income).

Yolo County Housing Authority operates the Lower Income Rental Assistance program. This program aids low- and very low-income families in obtaining decent, safe, and sanitary housing in private accommodations. Monthly housing assistance payments are based on the difference between a payment standard for the area and 30 percent of the family's monthly income. For families selected for assistance, preference will be given to those who are occupying substandard housing, are voluntarily displaced, or are paying more than half of their income for rent. Currently (1991), 16 Section 8 Certificates and Vouchers are being used in the Winters area.

YCHA owns and operates housing complexes in six locations throughout the county. The closest such project to Winters is El Rio Villa, located just east of Interstate 505, on Road 32. El Rio Villa was constructed in 1936 by HUD as farm labor housing for both permanent and migratory workers. Over the years, the original units have been replaced. In early 1992, an 18-unit reconstruction project was completed by YCHA, bringing the total number of units at El Rio Villa to 126 duplex and fourplex rental units. These units house 330 persons. According to YCHA, approximately 90 percent of the units are occupied by families employed in farm-related industries. Rental cost is 30 percent of family income. Yolo County Housing Authority currently operates no housing projects within the Winters city limits.

Farmer's Home Administration (FmHA)

The Farmer's Home Administration, an agency of the U.S. Department of Agriculture, provides grants and low-cost loans to improve housing in rural areas. Potential recipients include rural residents, government entities, and both nonprofit and profit-motivated sponsors.

Unlike HUD programs which generally operate through banks and other approved lending institutions, FmHA itself makes loans directly to qualified applicants.

FmHA grants and loans (except those under the farm labor program) are made only in rural areas--generally defined as areas with populations under 10,000 or up to 20,000 in credit-scarce regions outside a Metropolitan Statistical Area (MSA).

Rental Housing Loans (Section 515)

These insured loans provide funds to build, purchase or repair multi-unit rental or cooperative housing for persons with low and moderate incomes and for those age 62 and older in rural communities of not more than 10,000 population. Such loans may also be available in communities between 10,000 and 20,000 residents if the facility is not within an SMSA. The maximum repayment period is 50 years for senior citizen projects and 40 years for all other projects. Rental assistance provisions or programs are available and administered by FmHA or HUD's Section 8 rent subsidy program.

Low-income persons are required to pay 30 percent of their adjusted income. According to the FmHA, the Section 515 program is regularly renewed in five-year increments. Continued funding, while not guaranteed, appears very likely (source: personal communication, Mary Curll, FmHA).

There are two assisted apartment complexes within Winters, both subsidized by the Farmer's Home Administration (FmHA) Section 515, Rural Rental Assistance Program. These are the Almondwood and Winters Apartments. A third project, a 48-unit senior housing complex in Winters, is in the process of applying for Section 515 funds, and the City is expected to approve the project in Spring or Summer 1992. Very-low-income seniors have first priority for these units.

Community Development Block Grant

Under the Housing and Community Development Acts of 1974 and 1977, federal funds in the form of Community Development Block Grants are made available to local governments like Winters. The primary objective of the program is to upgrade low and moderate income housing. The City of Winters is currently in the process of applying for CDBG funding for the first time for housing rehabilitation.

Home Investment Partnership Act (HOME Program)

The HOME Program is a new federal housing program enacted pursuant to Title II of the National Affordable Housing Act (1990). The program is being operated by Yolo County to receive program funds for cities in Yolo County. The purposes of the HOME Program are to: 1) expand the supply of decent, affordable housing for low- and very low-income families, with emphasis on rental housing; 2) build state and local capacity to carry out affordable housing programs; and 3) provide for coordinated assistance to participants in the development of affordable low-income housing. The program requires a 50 percent match in funds from the locality, but for the first year no match is required. The HOME Program funds can be used for acquisition, rehabilitation, new construction, and first-time homebuyers programs.

The Rental Housing Construction Program

The Rental Housing Construction Program (RHCP), operated by the California Department of Housing and Community Development (HCD), is designed to stimulate the production of rental units affordable to low-income households, by offering 40-year loans with deferred payment of principal at a three percent interest rate. Construction and permanent financing are available, and a minimum of 30 percent of the units must be assisted with at least two-thirds of those units for very low-income households. RHCP provides subsidy to 12 units in the Almondwood apartment complex in Winters. Originally funded in 1983, RHCP operates under a 30-year regulatory agreement with the property owner.

City of Winters - Second Units

The Winters *Zoning Ordinance* allows secondary dwelling units in the R-1 Zoning district, subject to the granting of a conditional use permit by the Planning Commission. Second units are subject to various conditions, including design review, a floor space limitation of 640 square feet, and an occupancy limit of two persons. Second units are, however, allowed on lots as small as 6,000 square feet with no limitations on the type or tenure of the occupant.

Joint Agreement for Homeless Services

As reported in a previous section, the City of Winters participates in a joint agreement with Yolo County and other Yolo County cities to provide services to the homeless. The agreement provides for a homeless coordinator and for cold weather shelter. For an expanded description of this program see the section on special needs above.

PRESERVATION OF ASSISTED HOUSING

Starting in 1992, housing elements are required by state law to include an analysis of assisted multifamily housing units due to convert to market-rate housing. The analysis is to cover the period starting at the statutory date for housing element revision and run for the following 10-year period. The statutory revision date for Winters' Housing Element was July 1, 1991; the end of the required 10-year period for analysis of assisted housing units is, therefore, July 1, 2001. Most low- and moderate-income housing units assisted through either a federal, state, or local housing program qualify as assisted housing. The analysis should include the following information:

- Inventory of units at risk of losing use restrictions,
- Cost analysis of preserving at-risk units versus replacing them,
- Non-profit entities capable of acquiring and managing at-risk projects,
- Potential preservation financing sources,
- Number of at-risk projects/units to be preserved, and
- Efforts to preserve units at risk of losing use restrictions.

There are no assisted housing developments in Winters that are eligible to convert to non-low-income housing during the ten-year period from July 1, 1991 through July 1, 2001. This conclusion was based in part on the California Housing Partnership Corporation report entitled *Inventory of Federally-Subsidized Low-Income Units At Risk of Conversion*. The conclusion was also based on an analysis of the existence of state and locally-subsidized program units in Winters.

There are two FmHA-subsidized multifamily projects that were investigated to determine if they qualified for analysis under the new state law requirements, but upon investigation were determined to fall outside of the 10-year period. The first project, the Almondwood Apartments, located at 801 Dutton Street, is a 39 unit complex which includes 20 units assisted by the FmHA 515 Program and HCD's RHCP Program. The second project, the Winters Apartments, located at 116 East Baker Street, is a 44 unit complex, of which 35 units are subsidized by the FmHA 515 Program. In each case, the subsidized

mortgage is for a 40- to 50-year time period with no option for prepayment. The Almondwood Apartments began its mortgage in 1983 and the Winters Apartment began its mortgage in 1981.

In addition, a 48-unit senior housing project, which will be subsidized under the FmHA 515 rental assistance program, is proposed for construction within the city sometime in the near future. All of the units in this project will likely be occupied by persons of very-low income.

The FmHA Program units will face risk of conversion sometime after the 10-year period cited above. Similarly, because the RHCP program is linked to the FmHA Section 515 program, the dwelling units subsidized under that program are also not at risk of conversion. (Source: Linda Wheaton, California Department of Housing and Community Development).

IMPLEMENTATION OF THE 1984 HOUSING ELEMENT

State law requires cities and counties to provide an analysis of the progress made in implementing their previous housing element programs. This section lists the 1984 Housing Element's housing program. The City's actions in implementing each programs follows the program statement in italic print.

Housing Supply

1. Help identify, facilitate, and solicit Federal and State funding, if available, for the construction of rental apartment units and low and moderate single-family units.

   Not implemented due to lack of staff resources.

2. Provide provisions in the zoning ordinance to allow mobilehome parks and subdivisions in the various residential zoning districts through a use permit procedure. Proposed mobilehome parks and subdivisions will be evaluated on an individual basis and the density range will be established by the underlying zoning and General Plan classification.

   Implemented through Ordinance 86-04, which sets forth regulations for the development of mobilehome parks in Winters allowing mobilehome parks in all residential districts in the city.

3. Include in the subdivision ordinance a requirement that no designated mobilehome park can be converted to condominiums or cooperative projects unless 2/3 of existing tenants agree to such a conversion.

   Implemented through Article 10 of the Winters Municipal Code, which sets forth regulations for the conversion of rental units, including mobilehomes, to condominiums.

   Also implemented through the mobilehome renovation project on Baker Street, wherein 12 units were built for rental to senior citizens through Title 8 subsidies. This program is coordinated with the Yolo County Housing Authority, and was initiated in 1987.

4. Identify, facilitate, and solicit federal and state funding assistance, if available, for mortgage assistance and rent subsidies.

   Not implemented due to lack of staff resources.

5. The City will establish a program to periodically review the General Plan to ensure the document meets the City's current needs. One of the elements for the periodic review will be the continuous monitoring of the availability and usage of the lands in the various residential density classifications.

   Implemented through an ongoing process which has culminated in the current General Plan revision process.

6. Amend the city's condominium conversion ordinance to include:

   - The latest provisions which address the rights of tenants;
   - A minimum multi-family vacancy rate requirement to be met prior to approval for conversion; and
   - Commitment to provide ownership opportunities for low and moderate income residents.

   See Program 3, above.

7. Prior to the next funding cycle, apply for small Community Development Block Grant funding for the purpose of rehabilitating those housing units within the city which are deteriorating.

   Currently being implemented; the City is in the process of applying for CDBG funding for housing rehabilitation in the Major Vista area.

8. Encourage maximum utilization of any additional federal and state funds for low interest loans and grants for the rehabilitation of ownership and rental properties.

   Except for application to the CDBG Program (see Program 7, above), the City has not pursued low interest loans or grants for housing rehabilitation due to a lack of staff resources.

9. Encourage maximum use of available public and private funds to help provide for the special housing needs of the elderly, handicapped, single parent, and large families.

   The Community Center has provided ongoing referrals to senior citizens requesting assistance in locating needed services. Otherwise, this program has not been implemented due to lack of staff resources.

10. Distribute available housing subsidies to available sites in neighborhoods throughout the city to avoid the formation of concentrations of such housing.

    The City has provided assistance to individuals who have requested aid in locating subsidy funding for housing. The city has not actively pursued any programs to locate and distribute such funding due to lack of staff resources.

11. Adopt a policy prohibiting discriminatory and unfair housing practices within the city. A procedure should be developed to provide for a mechanism through which aggrieved parties can notify the City of unfair housing practices and through which the City can in turn contact the appropriate local, state, or federal agencies.

    Implemented through a yearly resolution adopted by the City Council endorsing fair housing, and through an annual "Fair Housing Week," where the City's pro-fair housing policy is advertised and

promoted. The Community Development Department handles claims of unfair housing practices and refers aggrieved parties to the proper authorities.

12. Cooperate to the maximum extent feasible with all public agencies, special districts, non-profit housing organizations, and local lending institutions in mutual efforts to provide affordable housing.

    Not Implemented due to lack of staff resources.

13. Prepare and utilize a format for evaluating immediate and long range public service capacities and costs resulting from new developments in order to assure the city's ability to provide and maintain necessary public improvements in new and existing neighborhoods.

    Currently being implemented through sewer, water, and drainage studies being performed by CH2M Hill and by updating the Ralph Anderson study of development fees completed in 1990.

14. Promote the use of passive and active solar systems in new and existing residential buildings.

    Implemented (ongoing). This condition is included in the conditions of approval for appropriate projects.

15. Include in the next application for Small Community Development Block Grant funding a request for funds to provide for weatherization, insulation installation, and other energy conservation retrofitting to those low-income residents in need of such help.

    Implemented (1986-'89) through a grant which funded a series of workshops put on by People Resources, Inc., dealing with low cost weatherization techniques and funding sources.

16. Continue to ensure that State residential energy conservation building standards are complied with.

    Implemented (ongoing) through Building Division permitting requirements.

Conclusions

Many of the implementation programs contained in the 1984 Housing Element have been successfully implemented by the City of Winters. There are, however, a number of programs which the City has failed to implement. Most of these programs involved applying for state or federal funding for affordable housing construction or rehabilitation, and in most cases the reason for failure to implement the program was lack of adequate staff resources.

Another part of the reason for the City's failure to fully implement its 1984 Housing Element is that the City has been undergoing an intensive general plan revision process since 1989. The City has focused much of its energy on completing this process, in part, because the City has been under a building moratorium since 1989 pending completion of the general plan revision. This process has strained City resources which could have otherwise been directed towards pursuing state and federal housing funds for projects in the city.

GENERAL PLAN CONSISTENCY

The Housing Element was updated as part of a comprehensive revision of the Winters *General Plan*, culminating in May 1992. This comprehensive effort was designed in part to ensure consistency among all updated General Plan elements.

CITIZEN PARTICIPATION

The 1992 General Plan update was the result of nearly three years of effort involving all segments of the community. Following publication of the *Draft General Plan* in October 1991, the City held six public hearings to receive comment on all elements of the draft plan. These hearings and the follow-up meetings were well attended by housing advocates and lower income individuals. A special meeting was held in February 1992 to solicit input directly from housing advocates and lower-income individuals on proposed housing policies and programs. In addition, Legal Services of Northern California followed the General Plan update process closely and provided input at several points.

GLOSSARY

Affordable Housing

Housing capable of being purchased or rented by a household with very low, low, or moderate income, based on a household's ability to make monthly payments necessary to obtain housing. Housing is considered affordable when a household pays less than 30 percent of its gross monthly income for housing including utilities.

Assisted Housing

Generally multi-family rental housing, but sometimes single-family ownership units, whose Construction, financing, sales prices, or rents have been subsidized by federal, state, or local housing programs including, but not limited to federal Section 8 (new construction, substantial rehabilitation, and loan management set-asides), federal Sections 213, 236, and 202, federal Section 221(d)(3) (below-market interest rate program), federal Section 101 (rent supplement assistance), CDBG, FmHA Section 515, multi-family mortgage revenue bond programs, local redevelopment and in-lieu fee programs, and units developed pursuant to local inclusionary housing and density bonus programs. By January 1, 1992, all housing elements are required to address the preservation or replacement of assisted housing that is eligible to change to market rate housing by 2002.

Community Development Block Grant (CDBG)

A grant program administered by the U.S. Department of Housing and Urban Development (HUD) on a formula basis for entitlement communities, and by the State Department of Housing and Community Development (HCD) for non-entitled jurisdictions. This grant allots money to cities and counties for housing rehabilitation and community development, including public facilities and economic development.

Density Bonus

The allocation of development rights that allow a parcel to accommodate additional square footage or additional residential units beyond the maximum for which the parcel is zoned, usually in exchange for the provision or preservation of an amenity at the same site or at another location. Under California law, a housing development that provides 20 percent of its units for lower income households, or 10 percent of its units for very low-income households, or 50 percent of its units for seniors, is entitled to a density bonus.

Dwelling Unit

A room or group of rooms (including sleeping, eating, cooking, and sanitation facilities, but not more than one kitchen), which constitutes an independent housekeeping unit, occupied or intended for occupancy by one household on a long-term basis.

Family

(1) Two or more persons related by birth, marriage, or adoption [U.S. Bureau of the Census]. (2) An individual or a group of persons living together who constitute a *bona fide* single-family housekeeping unit in a dwelling unit, not including a fraternity, sorority, club, or other group of persons occupying a hotel, lodging house or institution of any kind [California].

Homeless

Persons and families who lack a fixed, regular, and adequate nighttime residence. Includes those staying in temporary or emergency shelters or who are accommodated with friends or others with the understanding that shelter is being provided as a last resort. California housing element law requires

all cities and counties to address the housing needs of the homeless. (See "Emergency Shelter" and "Transitional Housing.")

Household

All those persons--related or unrelated--who occupy a single housing unit. (See "Family.")

Low-income Household

A household with an annual income usually no greater than 80 percent of the area median family income adjusted by household size, as determined by a survey of incomes conducted by a city or a county, or in the absence of such a survey, based on the latest available eligibility limits established by the U.S. Department of Housing and Urban Development (HUD) for the Section 8 housing program.

Manufactured Housing

Residential structures that are constructed entirely in the factory, and that since June 15, 1976, have been regulated by the federal *Manufactured Home Construction and Safety Standards Act of 1974* under the administration of the U.S. Department of Housing and Urban Development (HUD).

Mobilehome

A structure, transportable in one or more sections, built on a permanent chassis and designed for use as a single-family dwelling unit and that (1) has a minimum of 400 square feet of living space; (2) has a minimum width in excess of 102 inches; (3) is connected to all available permanent utilities; and (4) is tied down (a) to a permanent foundation on a lot either owned or leased by the homeowner or (b) is set on piers, with wheels removed and skirted, in a mobile home park.

Moderate-income Household

A household with an annual income between the lower income eligibility limits and 120 percent of the area median family income adjusted by household size, usually as established by the U.S. Department of Housing and Urban Development (HUD) for the Section 8 housing program. (See "Low-income Household.")

Multi-Family Housing

A detached building designed and used exclusively as a dwelling by three or more families occupying separate suites.

Rehabilitation

The repair, preservation, and/or improvement of substandard housing.

Residential, Multiple Family

Usually three or more dwelling units on a single site, which may be in the same or separate buildings.

Residential, Single-family

A single dwelling unit on a building site.

Second Unit

A self-contained living unit, either attached to or detached from, and in addition to, the primary residential unit on a single lot. Sometimes called "Granny Flat."

Section 8 Rental Assistance Program

A federal (HUD) rent-subsidy program that is one of the main sources of federal housing assistance for low-income households. The program operates by providing "housing assistance payments" to owners, developers, and public housing agencies to make up the difference between the "Fair Market Rent" of a unit (set by HUD) and the household's contribution toward the rent, which is calculated at 30 percent of the household's adjusted gross monthly income (GMI).

Seniors

Persons age 62 and older.

Shared Living

The occupancy of a dwelling unit by persons of more than one family in order to reduce housing expenses and provide social contact, mutual support, and assistance.

Single-family Dwelling, Attached

A dwelling unit occupied or intended for occupancy by only one household that is structurally connected with at least one other such dwelling unit.

Single-family Dwelling, Detached

A dwelling unit occupied or intended for occupancy by only one household that is structurally independent from any other such dwelling unit or structure intended for residential or other use. (See "Family.")

Substandard Housing

Residential dwellings that, because of their physical condition, do not provide safe and sanitary housing.

Transitional Housing

Shelter provided to the homeless for an extended period, often as long as 18 months, and generally integrated with other social services and counseling programs to assist in the transition to self-sufficiency through the acquisition of a stable income and permanent housing.

Uniform Building Code (UBC)

A national, standard building code that sets forth minimum standards for construction.

Uniform Housing Code (UHC)

State housing regulations governing the condition of habitable structures with regard to health and safety standards, and which provide for the conservation and rehabilitation of housing in accordance with the *Uniform Building Code* (UBC).

Very Low-income Household

A household with an annual income usually no greater than 50 percent of the area median family income adjusted by household size, as determined by a survey of incomes conducted by a city or a county, or in the absence of such a survey, based on the latest available eligibility limits established by the U.S.

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CHAPTER III

POPULATION

INTRODUCTION

This chapter reviews historical population trends, current demographics, and population projections for the city of Winters. Much of the information contained in this chapter is taken from the 1990 U.S. Census (Summary Tape File 1). Certain data from the 1990 U.S. Census are not yet available (May 1992). In such instances, 1980 data are used.

HISTORICAL POPULATION GROWTH

As of January 1, 1991, the Winters' population was 4,778, according to the California Department of Finance. The 1990 U.S. Census indicates a population of 4,639, which will be used elsewhere in this chapter. As shown in Table III-1 and Figure III-1, Winters' population growth rate fluctuated widely between 1980 and 1991, while increasing by 80.2 percent (an average annual rate of 5.5 percent). For most of the eleven year period the city's growth rate was under the eleven year average. Major increases in growth, however, occurred in 1983 (11.2 percent), 1987 (8.6 percent), 1989 (10.5 percent) and 1990 (8.4 percent).

During this same eleven year period, population within Yolo County and the state increased at a relatively steady, but much lower, rate. The average annual rate of increase was 2.1 percent for the county and 2.2 percent for the state. As shown in Table III-1, in most years, the cities of Woodland and Davis grew at a much lower rate than Winters.

TABLE III-1

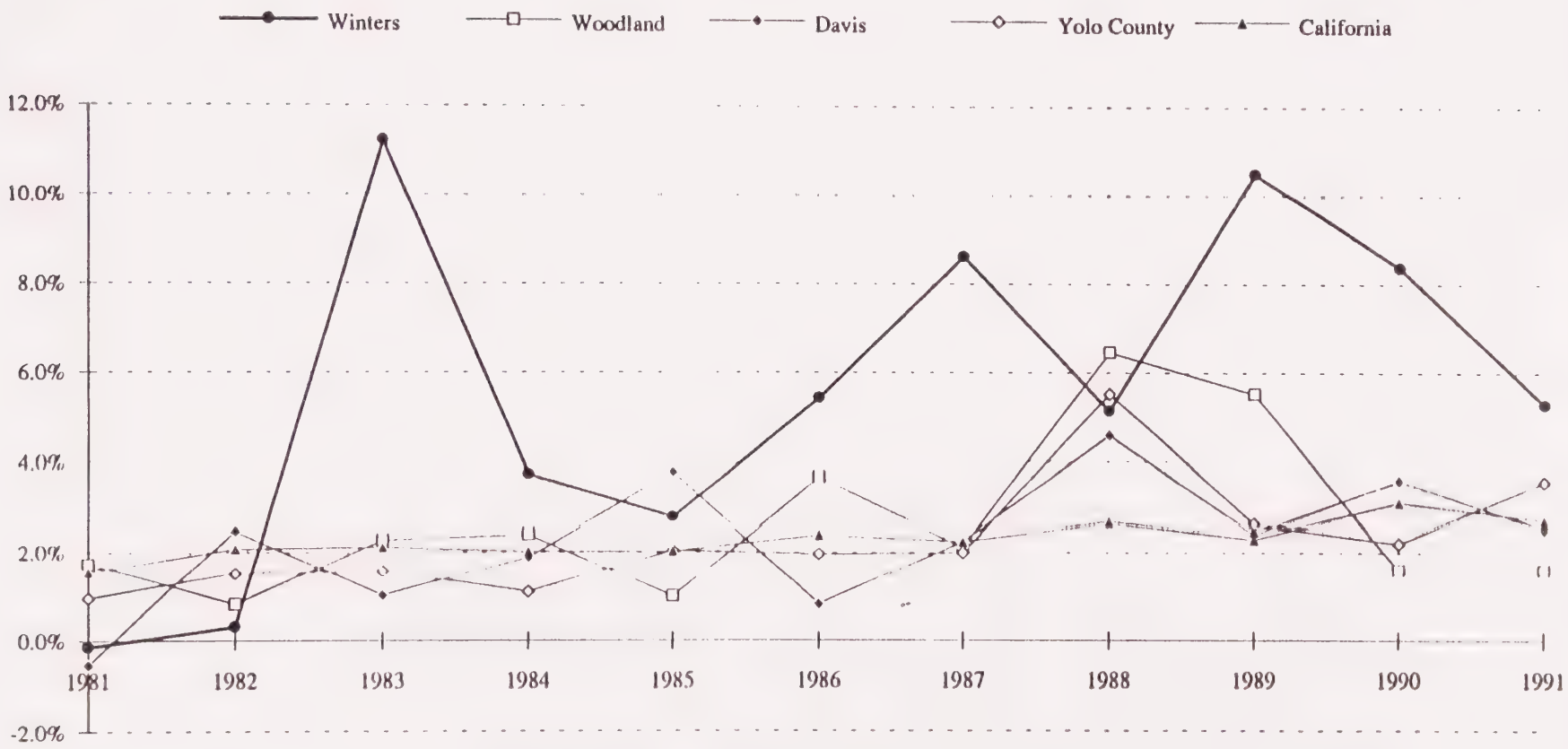
POPULATION GROWTH RATES
Winters, Woodland, Davis, Yolo County, and California
1980 to 1991

	Winters		Woodland		Davis		Yolo County		California	
Year	Population	% Change	Population	% Change	Population	% Change	Population	% Change	Population	% Change
1980	2,652	-	30,235		36,840	-	113,374	-	23,667,902	-
1981	2,648	.2	30,758	1.7	36,637	-.06	114,420	.9	24,032,331	1.5
1982	2,656	.3	31,002	0.8	37,548	2.5	116,139	1.5	24,531,693	2.1
1983	2,954	11.2	31,707	2.3	37,920	1.0	117,935	1.5	25,052,217	2.1
1984	3,064	3.7	32,467	2.4	38,632	1.9	119,196	1.1	25,555,386	2.0
1985	3,149	2.7	32,783	1.0	40,093	3.8	121,630	2.0	26,072,267	2.0
1986	3,320	5.4	33,984	3.7	40,412	0.8	124,024	2.0	26,693,749	2.4
1987	3,606	8.6	34,702	2.1	41,320	2.2	126,498	2.0	27,292,349	2.2
1988	3,791	5.1	36,941	6.5	43,219	4.6	133,476	5.5	28,018,710	2.7
1989	4,189	10.5	38,980	5.5	44,258	2.4	136,985	2.6	28,662,249	2.3
1990	4,540	8.4	39,600	1.6	45,850	3.6	140,000	2.2	29,551,000	3.1
1991	4,780	5.3	40,250	1.6	47,000	2.5	145,000	3.6	30,351,029	2.7
Total Increase 1980 to 1991										
	2,128	80.2	10,015	33.1	10,160	27.62	31,626	27.9	6,683,098	28.2
Average Compound Annual Increase										
		5.5		2.7		2.2		2.1		2.2

Sources: U.S. Census Bureau; California Department of Finance

FIGURE III-1

ANNUAL POPULATION GROWTH RATES
1980 to 1991



POPULATION CHARACTERISTICS

Age Distribution

Age structure is a particularly important planning consideration because different age segments of the population require different kinds of services. A younger population will likely demand more opportunities for active recreation, whereas an older population will likely call for more passive recreational facilities. Different age groups also require different considerations when it comes to housing. An older population will generally have less need for the type of large housing units that a population with a large number of residents of child-bearing age will need. Table III-2 shows the age distribution of Winters' population in 1990.

Table III-2 shows that the age structure of Winters, as of the 1990 U.S. Census, is different than that of the county and the state. While Winters has a higher percentage of young children (under age 18) and adults (age 35 and older) than either the county or the state, in the age 18 to 34 category the city is significantly lower than the county and the state. This statistic is most likely attributable to the lack of employment and career opportunities available in Winters to persons just beyond high school age.

According to the U.S. Census, in 1980 the median age (median age in 1990 is not available at this time (May 1992)) of the city (31.3) was somewhat higher than that of Yolo County (27.1).

TABLE III-2

AGE DISTRIBUTION
Winters, Yolo County, and California
1990

	Winters		Yolo County		California	
Age Group	Total	% of Total	Total	% of Total	Total	% of Total
Under 18	1,545	33.3	34,004	24.1	7,750,725	26.0
18 to 34	1,327	28.6	51,396	36.4	9,098,628	31.0
35 to 59	1,217	26.2	37,625	26.7	8,675,797	29.0
60 and over	550	11.9	18,067	12.8	4,234,871	14.0
Total	**4,639**	**100.0**	**141,092**	**100.0**	**29,760,021**	**100.0**

Source: U.S. Census Bureau, 1990

Racial and Ethnic Composition

Table III-3 shows a breakdown of the ethnic subgroups in the populations of Winters, Yolo County, and California, as of the 1990 U.S. Census.

As shown in Table III-3, the ethnic composition of Winters in 1990 was significantly different than both the county and the state in that there were very few Black or Asian persons living in the city. In addition, there was a much higher percentage of persons of Spanish origin. In Winters, persons of Spanish origin accounted for over two-fifths (40.2 percent) of the population, while in the county and the state this ethnic group accounted for 20 percent and 25.8 percent of the population, respectively.

TABLE III-3

ETHNIC COMPOSITION
Winters, Yolo County, and California
1990

	Winters		Yolo County		California	
Ethnic Group	Total	% of Total	Total	% of Total	Total	% of Total
White	2,663	57.4	96,825	68.6	17,029,126	57.3
Black	14	0.3	2,975	2.1	2,092,446	7.0
Asian/[1]	90	1.9	12,818	9.1	2,894,418	9.7
Spanish/[2]	1,868	40.2	28,182	20.0	7,687,938	25.8
Other	4	0.1	292	0.2	56,093	0.2
Total	**4,639**	**100.0**	**141,092**	**100.0**	**29,760,021**	**100.0**

[1] Includes Asian and Pacific islander, American Indian, Eskimo and Aleut
[2] Persons of Spanish origin are deducted for each race category and shown separately as Spanish

Source: U.S. Census Bureau, 1990

Household and Family Composition

Table III-4 provides a comparison of family composition in Winters, Yolo County, and California based on figures contained in the 1990 U.S. Census. As the table shows, Winters has a larger percentage of Married Couples with Children than either the county or the state. The percentage of Married Couples without Children is comparable to the county and the state. In 1990, the city had a significantly lower percentage of Non-Family Households than either the county or the state.

TABLE III-4

HOUSEHOLD COMPOSITION
Winters, Yolo County, and California
1990

	Winters		Yolo County		California	
Family Type	**Total**	**% of Total**	**Total**	**% of Total**	**Total**	**% of Total**
Married w/children	608	40.4	12,608	24.7	2,791,452	26.9
Married w/o children	383	25.4	12,528	24.6	2,678,070	25.8
Single male w/children	51	3.4	1,009	2.0	252,314	2.4
Single male w/o children	14	0.9	855	1.7	225,378	2.2
Single female w/children	111	7.4	3,739	7.3	784,315	7.6
Single female w/o children	31	2.1	1,445	2.8	407,865	3.9
Non-family households	308	20.5	18,788	36.9	3,241,812	31.2
Total	**1,506**	**100.0**	**50,972**	**100.0**	**10,381,206**	**100.0**

Source: U.S. Census Bureau, 1990

Place of Residence

Table III-5 describes mobility patterns for residents of Winters, Yolo County, and California between 1975 and 1980 (1990 U.S. Census data are not available). The 1980 Census indicated that the population of Winters was slightly more stable than California's general population. In 1980, 45.3 percent of Winters' population had lived in the same residence for at least five years, in contrast to Yolo County at 40 percent and the state at 44.6 percent.

Winters had a lower percentage of persons who had lived in a different house in the same county (18.2 percent) than both the county (22.3 percent) and the state (30.2 percent).

TABLE III-5

RESIDENTIAL PATTERNS
Winters, Yolo County, and California
1975 to 1980

	Winters		Yolo County		California	
Place of Residence	**Total**	**% of Total**	**Total**	**% of Total**	**Total**	**% of Total**
Same house	1,097	45.3	42,286	40.0	9,797,761	44.6
Different house/same Co.	440	18.2	23,638	22.3	6,631,480	30.2
Different county in CA	592	24.4	28,041	26.5	2,651,628	12.1
Different state	187	7.7	7,740	7.3	1,877,289	8.5
Different country	106	4.4	4,071	3.8	1,021,703	4.6
Total	**2,422**	**100.0**	**105,776**	**100.0**	**21,979,861**	**100.0**

Source: U.S. Census Bureau, 1980

POPULATION PROJECTIONS

As shown in Table III-1, in most of the years between 1980 and 1991 Winters grew at a relatively slow pace, although the growth rate in the 1980's was higher than that of pervious decades. As in other rural communities, Winters' population changes in the first half of this century were largely the result of a routine cycle of births and deaths within the community and the construction of an occasional new residence. In recent years, the burgeoning growth occurring in the Sacramento metropolitan area and the San Francisco Bay Area has had a dramatic effect upon the city, as indicated by the increasing number of residential developments which have been approved since the early 1980s. Winters' charm and proximity and easy access to both the Bay Area and Sacramento are likely for the foreseeable future to continue to attract residents willing to commute a half hour or more to employment opportunities.

The Sacramento Area Council of Governments (SACOG) has prepared population projections for the 20-year period ending in 2010 (see Table III-6). SACOG projects that Winters will grow at an average annual rate of 5.65 percent, reaching a population of 14,000 by the year 2010. During this same period, the county is expected to grow at an average annual rate of 2.57 percent. In 2010, the population of Yolo County is expected to reach 235,400.

TABLE III-6

PROJECTED POPULATION

Winters and Yolo County
1990 to 2010

Year	Winters Population	Winters % Change	Yolo County Population	Yolo County % Change
1990	4,540		139,960	
1995	5,800	27.8	154,100	10.1
2000	7,750	33.6	177,600	15.2
2005	10,400	34.2	204,700	15.3
2010	14,000	34.6	235,400	15.0
Total % Increase		**208.4**		**68.2**

Source: *Baseline Projections Yolo County*, Sacramento Area Council of Governments, May 5, 1992

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CHAPTER IV

ECONOMIC CONDITIONS

INTRODUCTION

This chapter examines economic conditions and market factors and trends within the Winters area that will have a bearing on the city's long-term growth and development.

ECONOMIC CONDITIONS IN WINTERS

In general, two trends characterize the current market conditions driving development in Winters and throughout the region: 1) strong demand for housing, and 2) relatively slow or sporadic growth in the industrial and commercial sectors. These trends and the market forces affecting them are discussed below.

Personal and Household Income

In 1990 the estimated average household income was $31,073 for Winters and $33,339 in Yolo County. Between 1980 and 1990, average household income grew by 70.8 percent in Winters and 70.6 percent in the county. The estimated average personal income in 1990 for Winters' residents was $10,777, whereas the county average was $12,682. Between 1980 and 1990, personal income grew by 70.8 percent in Winters and by 74.3 percent in the county.

Housing Demand

Chapter II, Housing, describes Winters' existing housing stock and recent changes. Until the 1980s, Winters had experienced relatively modest new housing development. Winters' recent strong housing demand and development has been the result of persons employed in the greater San Francisco Bay Area and Sacramento metropolitan areas moving to Winters, in large part, for its affordable housing. The potential for continued growth from commuters seeking affordable housing will directly affect Winters' future growth and economic development. The duration of the strong demand for housing depends primarily on the Bay Area's employment/housing imbalance. It seems likely that the Bay Area will continue to generate employment opportunities in excess of its housing supply for the next 20 years.

Chapter III, Population, describes population growth projections prepared by the Sacramento Area Council of Governments (SACOG) for both the county and Winters. In the next twenty years, while the county population is projected to increase by 65.5 percent, the population of Winters is projected to increase by 201.8 percent.

Demand for housing in Winters and nearby communities is expected to increase in response to relatively higher housing prices in the Sacramento and San Francisco Bay area regions, and the close proximity of Winters to the employment markets in those regions.

Commercial and Industrial Development

For most of Winters' existence the principal source of employment for Winters' residents has been agriculture. This is reflected in the 1980 U.S. Census, which showed 14.6 percent of the labor force was employed in agricultural-related industries. The closest competitor in terms of jobs was educational services at 10.3 percent of the labor force.

In 1990 the City of Winters retained Zephyr Associates and Economic Development Services to analyze the condition and economic potential of the Winters' downtown business district. In addition, the City

is in the process of establishing a redevelopment project area which includes the downtown commercial district and most of the older parts of the city. The boundaries of the redevelopment areas are shown in Figure I-7 in Chapter I.

Table IV-1 describes the industries and occupations of the 944 employed Winters' residents, as reported in the 1980 U.S. Census. Current data on occupations of Winters' residents is not available at this time.

TABLE IV-1

EMPLOYMENT IN WINTERS
1980

Industry	Employees	Percent
Agriculture, forestry, fisheries , and mining	138	14.6
Construction	63	6.7
Nondurable goods manufacturing	65	6.9
Durable goods manufacturing	75	7.9
Transportation	28	3.0
Communications and public utilities	22	2.3
Wholesale trade	59	6.3
Retail trade	157	6.6
Finance, insurance, real estate	29	3.1
Business and repair services	41	4.3
Personal, entertainment, recreation services	27	2.9
Health services	48	5.1
Educational services	97	10.3
Other professional services	20	2.1
Public administration	75	7.9
Total	**944**	**100.0**
Occupation		
Executive, administrative, managerial	83	8.8
Professional specialty	76	8.1
Technicians and related	18	1.9
Administrative support, clerical	108	11.4
Private household	--	--
Protective service	22	2.3
Service	99	10.5
Farming, forestry and fishing	110	11.7
Precision production, craft, repair services	140	14.9
Machine operators, assemblers, inspectors	150	15.9
Transportation and material moving	39	4.1
Handlers, equipment cleaners	55	5.8
Total	944	100.0

Source: U.S. Census Bureau, 1980

Table IV-2 provides a description of employee occupations by business types in the Winters' downtown area as of August 1990. As the table shows, the principal employment opportunities available in Winters are in retail trade and personal and recreational services. It should be noted, however, that Table IV-2 addresses only retail and service employers in the Winters' business district, thus excluding a number of other employment classifications. Further, this table is not necessarily a reflection of employment characteristics of Winters' residents as a whole.

TABLE IV-2

BUSINESS TYPES IN WINTERS
August 1990

Establishment Type	Number of Businesses	Percent	Number of Employees	Percent
Home improvement related	9	8.6	25	5.5
Department store related	1	1.0	13	2.9
Grocery related	7	6.7	83	18.3
Transportation: Car dealers and maintenance	15	14.3	39	8.6
Transportation: Rentals and recreation	1	1.0	2	0.4
Clothing related	1	1.0	2	0.4
Home furnishings related	4	3.8	12	2.6
Leisure and miscellaneous	8	7.6	19	4.2
Banking and finance	1	1.0	13	2.9
Office: insurance, real estate, legal	10	9.5	18	4.0
Office: medical	6	5.7	10	2.2
Medical facilities	2	1.9	30	6.6
Drug and proprietary stores	1	1.0	7	1.5
Personal services	17	16.2	37	8.1
Repair services	4	3.8	14	3.1
Entertainment related	9	8.6	65	14.3
Tourism related	9	8.6	65	14.3
Total	**105**	**100.3**	**454**	**99.9**

Source: *The Economic Development of The Winters' Downtown Area, Volume 1*, Zephyr Associates

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Table IV-3 provides an estimate of commercial growth for two time periods on the basis of establishment type. The column labeled "1990 Potential" estimates the additional retail-commercial activity that Winters could absorb currently, given the existing population and household characteristics. This column estimates a potential of eight additional business establishments or expansions of existing business, with 38 new employees.

The column labelled "Buildout Potential" provides an estimate of the additional retail-commercial activity Winters could absorb at a population of 14,000 or 5,200 households. This column estimates a potential of 54 additional businesses or expansions to existing businesses, and 192 new employees.

TABLE IV-3
POTENTIAL BUSINESS EXPANSION

	1990 Potential		Buildout Potential[1]	
Business Type	**Business**	**Employee**	**Business**	**Employee**
Home improvement	0	0	0	1
Department store related	1	3	1	8
Grocery related	1	4	6	9
Transportation: Car dealers maint	1	10	5	43
Transportation Rentals and recreation	0	1	1	5
Clothing related	1	1	5	5
Home furnishings related	0	0	0	0
Leisure and miscellaneous	1	4	4	15
Banking and finance	0	1	3	3
Office: Insurance, real estate, legal	0	0	1	2
Office: Medical	2	6	6	16
Medical facilities	0	0	0	0
Drug and proprietary stores	0	0	2	7
Personal services	0	0	0	3
Repair services	0	1	2	4
Entertainment related	0	2	13	50
Tourism related	1	5	13	59
Total	**8**	**38**	**62**	**230**

[1] Includes "1990 Potential" estimate.

Source: *The Economic Development of The Winters' Downtown Area, Volume 1*, Zephyr Associates

Table IV-4 shows 1987 and projected 1992 employment levels throughout Yolo County in major industrial classifications. As the table shows, the top employers in the county are government, retail trade, and services. Table IV-4 forecasts that while each of the major industries will grow during the five-year period, the greatest increases in employment opportunities will occur in retail and wholesale trade. Moderate employment increases are also anticipated in manufacturing, particularly food processing, as well as transportation and public utilities.

In conjunction with the 1992 General Plan update, the City's financial consultants, Economic & Planning Systems, estimated that total employment in Winters would increase by 2,467 jobs by 2010. This estimate includes 383 jobs in retail uses, 328 jobs in service uses, 179 jobs in office uses, and 1,577 jobs in industrial uses.

TABLE IV-4

PROJECTED COUNTYWIDE EMPLOYMENT GROWTH
1987-1992

Industry	1987 Employment	% of Total	1992 Employment	% of Total	% Change
Mining	200	.4	300	.5	50.0
Construction	2,400	4.5	2,700	4.4	12.5
Manufacturing	5,100	9.6	5,800	9.4	13.7
Transportation, public facilities	3,600	6.8	4,300	7.0	19.4
Whole trade	3,700	7.0	4,800	7.8	29.7
Retail trade	8,500	16.0	10,300	16.7	21.2
Finance, insurance real estate	1,900	3.6	2,500	4.0	31.6
Services	7,500	14.1	9,000	14.6	20.0
Government	20,200	38.0	22,100	35.8	9.4
Total, Non-agricultural	**53,200**	**100.0**	**61,800**	**100.0**	**16.2**

Source: *Projections of Employment 1987-1992 by Industry and Occupation*, State of California, Labor Market Information Division, Employment Development Department, 1989

GLOSSARY

Community Redevelopment Agency (CRA)

A local agency created under *California Redevelopment Law*, or a local legislative body that has elected to exercise the powers granted to such an agency, for the purpose of planning, developing, re-planning, redesigning, clearing, reconstructing, and/or rehabilitating all or part of a specified area with residential, commercial, industrial, and/or public (including recreational) structures and facilities. The redevelopment agency's plans must be compatible with adopted community general plans.

Comparison Goods

Retail goods for which consumers will do comparison shopping before making a purchase. These goods tend to have a style factor and to be "larger ticket" items such as clothes, furniture, appliances and automobiles.

Convenience Goods

Retail items generally necessary or desirable for everyday living, usually purchased at a convenient nearby location. Because these goods cost relatively little compared to income, they are often purchased without comparison shopping.

Destination Retail

Retail businesses that generate a special purpose trip and that do not necessarily benefit from a high-volume pedestrian location.

Industry, Basic

The segment of economic activity that brings dollars to a region from other areas. Traditional examples are manufacturing, mining and agriculture. The products of all of these activities are exported (sold) to other regions. The money thus brought into the local economy is used to purchase locally-provided goods and services as well as items that are not available locally and that must be imported from other regions. Other, less traditional examples of basic industry are tourism, higher education, and retirement activities that also bring new money into a region.

Industry, Non-basic

The segment of economic activity that is supported by the circulation of dollars within a region. Examples are the wholesale, retail, and service functions that supply goods and services to local sources of demand such as businesses, public agencies, and households.

Personal Services

Services of a personal convenience nature, as opposed to products that are sold to individual consumers, as contrasted with companies. Personal services include barber and beauty shops, shoe and luggage repair, fortune tellers, photographers, laundry and cleaning services and pick-up stations, copying, repair and fitting of clothes, and similar services.

Shoppers Goods

Another name for comparison goods.

PERSONS CONSULTED

Astone, Ed, President, Zephyr Associates

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CHAPTER V

TRANSPORTATION AND CIRCULATION

INTRODUCTION

A city is both defined and constrained by the network of highways, roads, streets, and transit services that move its residents and goods through and in and out of the city. This chapter discusses Winters' transportation system and services, including streets and highways, parking, public transit, and air service.

STREET AND ROAD SYSTEM

Regional Context

The principal highways in or near the city of Winters are Interstate 505 and State Highway 128. Interstate 505, located less than a half mile east of the city limits, serves as a key link between Interstate Highway 80, approximately 10 miles to the south, and Interstate 5, approximately 23 miles to the north. Highway 128, which originates at Interstate 505 and transects the city, serves as a major access route to Lake Berryessa, a major recreational destination.

Functional Classification of Roadways

The street system which serves a city can be described in a hierarchical fashion, according to the functional classification of the streets and highways. The functional classification system recognizes that a street system has two primary purposes:

- To provide mobility throughout a community
- To provide access to the individual properties that make up the community

As a community becomes more urbanized, pursuit of these two purposes can lead to conflicts if not properly managed. In particular, unrestricted access on streets which carry heavy traffic volumes can reduce the capacity of those streets, leading to congestion. For this reason, it is desirable to classify streets according to their traffic-carrying ability and the degree to which access can be provided. Winters' street system and that of the immediately surrounding area can be classified according to four basic functional types of roadways:

Freeways: Freeways provide the highest level of mobility and the lowest level of access. Access is permitted only at selected interchanges spaced from one-half to five miles apart. For the foreseeable future, only Interstate 505 is likely to be designated as a freeway.

Arterial Streets: Arterial streets are the main traffic servers within a community. They provide connections to the freeway system and to the city's major traffic generators. They also provide access to collector streets as a means of distributing traffic through the community. Ideally, access to arterial streets should be limited to collector streets and to driveways of major traffic generators such as shopping centers, hospitals, or major industrial facilities. It is preferable that local streets and private homes not have direct access to arterial streets, as driveways are a significant constraint on arterial street capacity.

Arterial streets usually provide four to six travel lanes plus a left turn median, and they are typically spaced at one-mile intervals in the urban circulation system.

Collector Streets: Collector streets serve a dual function of land access and mobility. They "connect" the local streets to the arterial street system and also provide direct access to fronting properties. The streets usually provide two lanes for moving traffic plus a parking lane and possibly bicycle lanes. Left turn lanes can be provided throughout, or can be limited to intersections with arterials and other collectors. Cities have varying standards regarding the amount of land access provided on collectors. Some cities allow residential and commercial driveways to front onto collectors, while others limit access to commercial properties at selected intervals. The choice is usually related to the degree to which the collector streets must serve overloaded arterial streets in the vicinity.

Collector streets are usually placed midway between arterial streets, or approximately one-half mile from the nearest parallel arterial.

Local Streets: The principal function of local streets is to provide access to the adjoining properties. Most local streets serve residential properties, and the better designs try to limit through traffic on these streets. Effective design of a local street usually tries to limit its width to allow for two moving lanes and two parking lanes.

In addition, alleys in the older section of Winters provide primary access to some residences and also serve as access for service vehicles.

Physical Constraints on the Street and Roadway System

Physical constraints on the city's circulation system are the natural and man-made local features that limit existing and future roadway connections and alignments, and thereby constrain the community's access and circulation capacity.

There are few streets in the city which efficiently function as arterial streets. The two designated arterials, Grant Avenue (State Highway 128) and Railroad Avenue, are two-lane streets with limited traffic-carrying capacity. The intersection of Grant Avenue and Railroad Avenue is not signalized and experiences the highest traffic volume of any intersection in the city.

Following are other constrained areas:

- Putah Creek and Dry Creek are physical barriers to traffic movement. Each creek currently has one bridge crossing.
- There are a number of dead-end streets in the city, including Apricot Street, between Anderson Avenue and Grant Avenue, Mermod Place, Taylor, Washington, East, and McArthur Streets.
- Main Street is the principal street in the central business district. Relatively high traffic volume and narrow width serve to impede efficient traffic flow.

Vehicle-Carrying Capacities of Urban Streets

The capacity of an urban street is one of the basic tools for measuring the adequacy of the circulation system to serve travel demand. The capacity of any roadway will depend on a number of factors, including: pavement width or number of lanes; channelization of the roadway to provide for separate turning lanes; type of traffic control (e.g., stop signs, traffic signals); presence or absence of pedestrians crossing the street; and relative friction from driveways and parked cars. Of these several factors, the number of lanes on a street and the type of traffic control are the most important.

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In most urban situations, signalized intersections serve as gateways or bottlenecks and determine the ultimate capacity of a street. Therefore, intersection levels of service should be the determining factor in assessing roadway network adequacy. Roadway segments between intersections, however, must be of sufficient geometrics to provide the necessary number of approach lanes. Table V-1 presents the general guidelines for street cross sections based on anticipated daily traffic volumes.

TABLE V-1

RECOMMENDED TRAFFIC VOLUME STANDARDS

Roadway Type	Daily Volume Range
Four-Lane Divided Arterial	25,000 - 30,000
Four-Lane Undivided Arterial	17,500 - 22,500
Two-Lane Undivided Arterial	10,000 - 15,000
Four-Lane Divided Collector	8,800 - 11,000

Source: Wilbur Smith Associates, August 1991.

In Winters, volumes are currently so low that traffic signals are not warranted. Four-way stop signs, which are the "strongest" traffic controls in Winters, typically create lower capacity in the circulation system than traffic signals. When volumes reach the point where the four-way stops begin to restrict capacity, however, these volumes are usually high enough to warrant the installation of a signal. For this reason, it appears logical to follow standard practice in estimating vehicular capacity on the assumption that traffic signals rather than four-way stop signs will ultimately control major intersections in Winters, and thus govern the capacity of the city's streets. Intersection volume/capacity ratios are usually converted to a more qualitative "Level of Service" descriptor, based on established relationships between volume levels and perceived service quality. Table V-2 provides a description of the various levels of service.

TABLE V-2

DEFINITIONS OF LEVELS OF SERVICE
FOR SIGNALIZED INTERSECTIONS

Level of Service "A" - Describes operations with very low delay (i.e., less than 5.0 seconds per vehicle). This occurs when progression is extremely favorable, and most vehicles arrive during the green signal phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

Level of Service "B" - Describes operations with delay in the range of 5.1 to 15.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

Level of Service "C" - Describes operations with delay in the range of 15.1 to 25.0 seconds per vehicle. This higher delay may result from fair progression and/or longer cycle lengths. Individual cycle failures (i.e., when drivers have to wait through more than one signal change) may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

Level of Service "D" - Describes operations with delay in the range of 25.1 to 40.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Long delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service "E" - Describes operations with delay in the range of 40.1 to 60.0 seconds per vehicle. This is generally considered to be the limit of acceptable delay. These delays generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.

Level of Service "F" - Describes operations with delay in excess of 60.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high V/C ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: *Highway Capacity Manual*, Transportation Research Board, 1985

Current Traffic Volumes and Service Levels

Major streets serving the city of Winters include Interstate 505, Grant Avenue (i.e., State Route 128), Railroad Avenue, and Main Street. These streets and the average daily traffic they carry are shown in Figure V-1.

Interstate 505 (I-505) is the major regional access route for Winters. The north-south four-lane divided highway is just beyond the eastern boundary of the city. I-505 provides a link between I-80 to the south and I-5 to the north. According to 1988 estimates of average daily traffic (ADT), I-505 carried between 16,000 and 18,000 daily trips in the vicinity of the SR-128 junction during the peak month period.

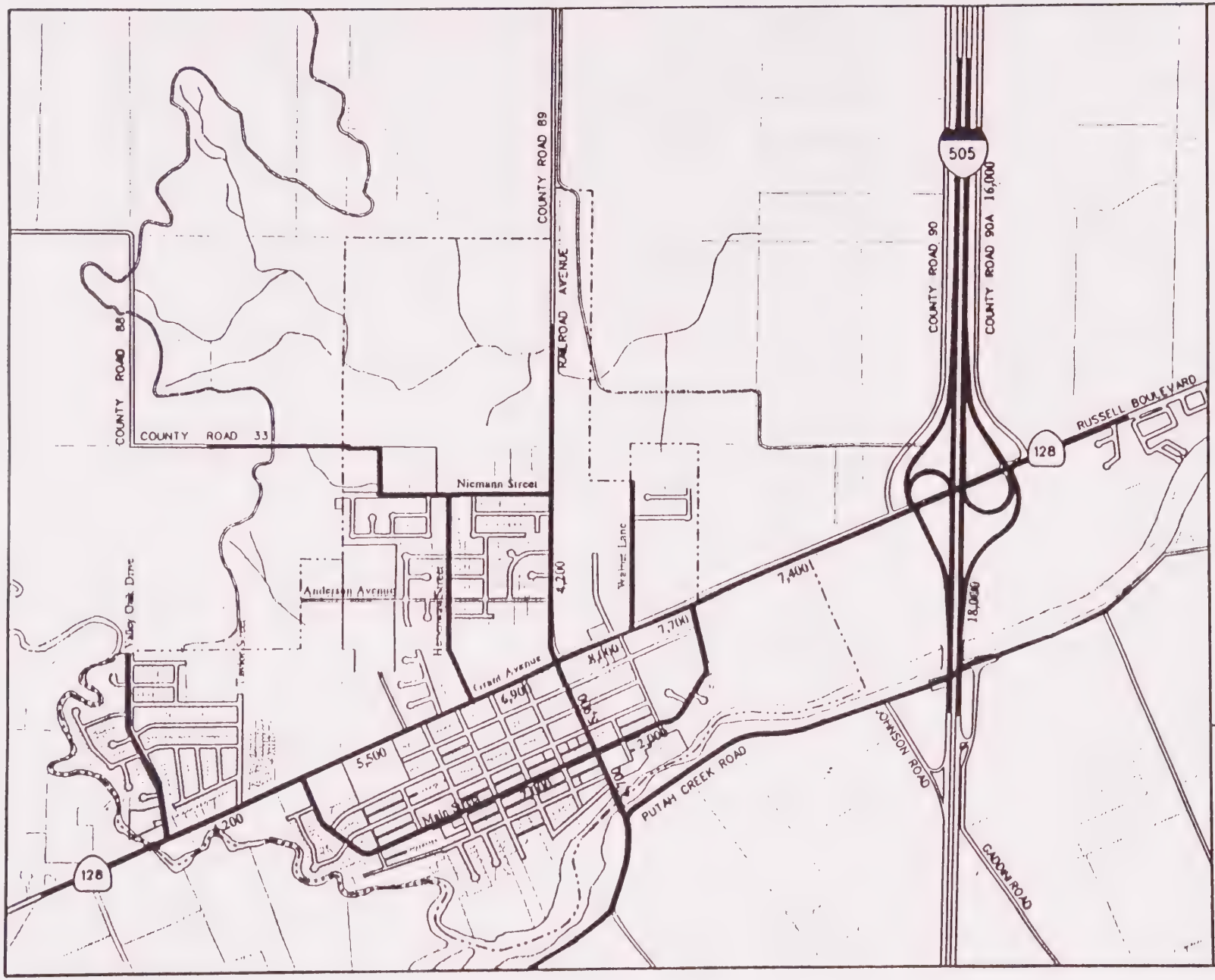

FIGURE V-1

EXISTING CONDITIONS:
AVERAGE DAILY TRAFFIC

Source: Wilbur Smith Associates, June 1990

CITY OF WINTERS

N

0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

Interstate 505 (I-505) is the major regional access route for Winters. The north-south four-lane divided highway is just beyond the eastern boundary of the city. I-505 provides a link between I-80 to the south and I-5 to the north. According to 1988 estimates of average daily traffic (ADT), I-505 carried between 16,000 and 18,000 daily trips in the vicinity of the SR-128 junction during the peak month period.

The major street intersection in Winters is Grant Avenue (SR-128) and Railroad Avenue (County Road 89), which is controlled by four-way STOP signs and has a red flashing warning light.

SR-128 (Grant Avenue) serves as the major east/west arterial in the city and provides a major link between Davis on the east and Lake Berryessa and Napa County on the west. As shown in Figure V-1 average daily traffic on Grant Avenue, between Railroad Street and I-505 ranged from 7,400 to 8,000 in June 1990. Caltrans reports the average daily volume on this segment to range from 7,200 to 7,800, increasing to 8,400 to 9,100 during the peak month (September or October). Peak month volumes are the result of both locally-generated traffic and regional recreation traffic to and from Lake Berryessa.

Railroad Avenue has one lane in each direction and is designated as an arterial street. It runs from Solano County south of Putah Creek to the town of Esparto north of Winters. The street is a major route for traffic from residential areas to Grant Avenue and to the Winters' central business district. Average traffic on Railroad Avenue south of Grant is estimated at 5,900. North of Grant Avenue daily traffic is 4,200 vehicles per day.

Main Street serves as a major east-west collector for the city's oldest residential area, south of Grant Avenue, and is also utilized for commercial traffic in the central business district. Average traffic is estimated at 2,000 vehicles per day.

Other important residential collectors include Valley Oak Drive, Taylor Street, Hemenway Street, Niemann Street, Anderson Avenue, and Walnut Lane.

Traffic operations were evaluated in 1990 at the following unsignalized intersections:

- Grant Avenue/Highway 505 SB Ramps:
- Grant Avenue/Highway 505 NB Ramps:
- Grant Avenue/Main Street;
- Grant Avenue/Railroad Avenue; and
- Main Street/Railroad Avenue.

Existing traffic data used in the analysis were obtained by field counts taken by Wilbur Smith Associates on Thursday, June 21, 1990. Figures V-2 and V-3 illustrate turning movements and traffic volumes for morning and afternoon peak hours, respectively.

Of the five intersections analyzed, two are four-way STOPS and three are "T" intersections with STOP signs only on the minor street approach. Because of differences in traffic operations at these two types of intersection, different methods are used to analyze traffic conditions.

Level of service (LOS) estimations were used to evaluate traffic conditions at the "T" intersections. The determination of level of service at "T" intersections is based on the reserve capacity available to a given turning movement.

The reserve capacity is the number of vehicles above the observed or expected number which could be accommodated by the turning lane at the intersection in question. The relationship between level of service, reserve capacity, and delay at "T" intersections is shown in Table V-3.

TABLE V-3

RELATIONSHIP BETWEEN RESERVE CAPACITY, LEVELS OF SERVICE AND EXPECTED DELAY FOR "T" INTERSECTIONS

Reserve Capacity	Level of Service	Expected Traffic Delay
400 or more	A	Little or no delay
300 - 399	B	Short traffic delays
200 - 299	C	Average traffic delays
100 - 199	D	Long traffic delays
0 - 99	E	Failure - extreme congestion
	F	Intersection blocked by external causes

Source: *Highway Capacity Manual*, Transportation Research Board, 1985

The intersections at Grant Avenue/Railroad Avenue and Main Street/Railroad Avenue are four-way STOP intersections. The techniques used to evaluate level-of-service for these intersections are different than those for other unsignalized and signalized intersections. The 1985 Highway Capacity Manual provides figures which indicate total volumes for LOS C operation and unacceptable operation under various lane configurations and traffic volume percentages. The method used to evaluate four-way STOP intersections is to calculate the total volume at intersections and the percentage of traffic in each direction, then compare the volume with the appropriate volumes in the figures. Intersection operation can then be characterized as "LOS C or better"; "between LOS C and capacity"; or "over capacity." Existing levels-of-service in both the AM and PM peak hours at the five intersections are provided in Table V-4.

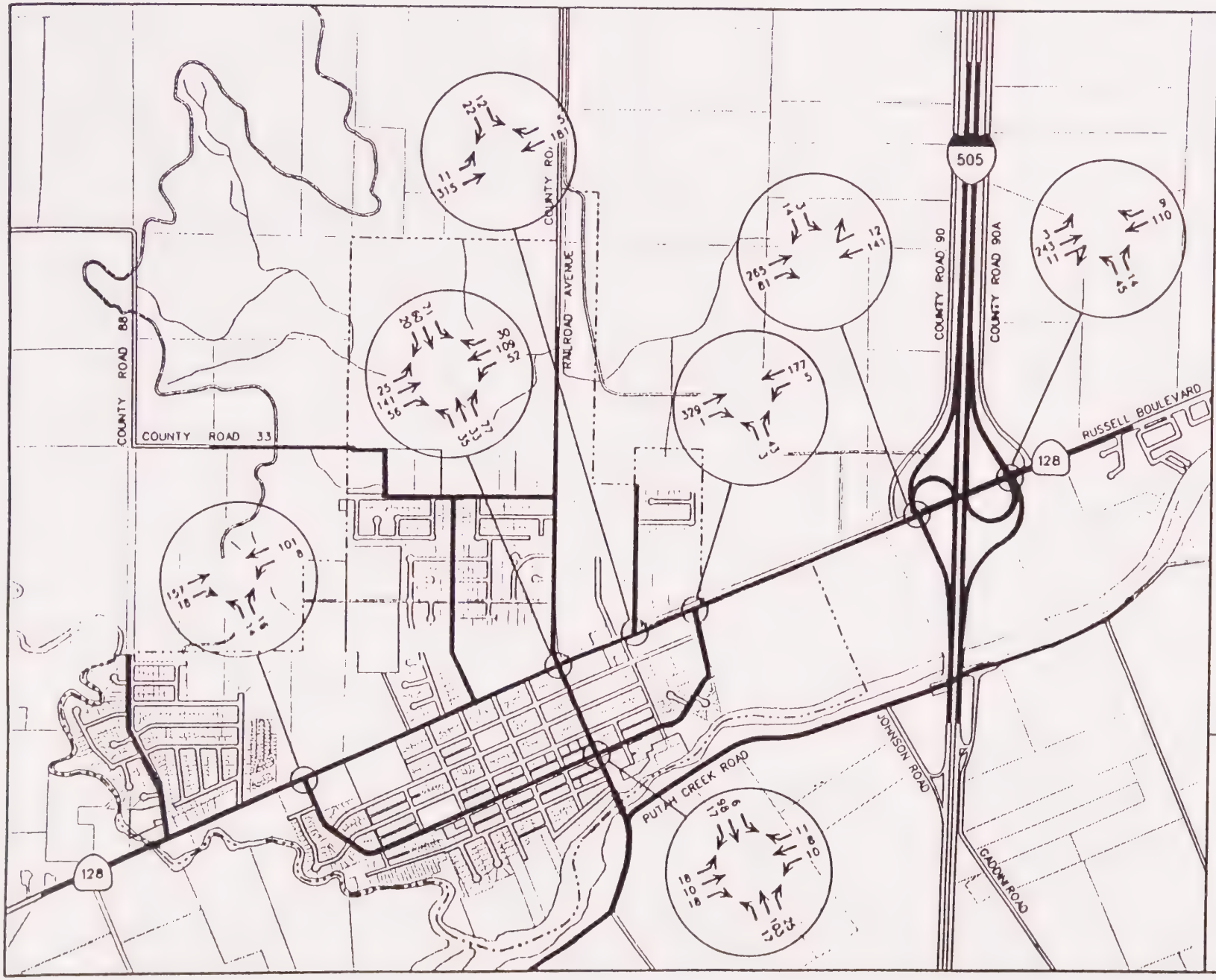

FIGURE V-2

EXISTING A.M. PEAK TRAFFIC VOLUMES

○ Location of Intersection Measured

60 → Direction and Volume of Traffic at Intersection

Source: Wilbur Smith Associates, June 1990

CITY OF WINTERS

N

0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

FIGURE V-3

EXISTING P.M. PEAK TRAFFIC VOLUMES

○ Location of Intersection Measured

← 33 Direction and Volume of Traffic at Intersection

Source: Wilbur Smith Associates, June 1990

CITY OF WINTERS

N

0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

As indicated in Table V-4, all intersections are operating at LOS C or better during the AM peak period. The intersection at Grant Avenue and Railroad Avenue experiences a significant volume increase during the PM peak period and operates at between LOS C and capacity. Results of each intersection analysis are described below.

TABLE V-4

EXISTING LEVELS OF SERVICE FOR UNSIGNALIZED INTERSECTIONS

		AM Peak Hour		PM Peak Hour	
"T" Intersections	Movement	RC	LOS	RC	LOS
Grant Avenue/	SB Left	453	B	324	A
SB I-505 Ramps	SB Right	818	A	568	A
	EB Left	960	A	723	A
Grant Avenue/	NB Left	446	A	274	C
NB I-505 Ramps	NB Right	723	A	737	A
	WB Left	875	A	918	A
Grant Avenue/	NB Left	541	A	304	B
Main Street	NB Right	814	A	728	A
	WB Left	936	A	841	A
Four-Way STOP Intersections					
Grant Avenue/ Railroad Avenue	Overall	*	CoB	*	C&C
Railroad Avenue/ Main Street	Overall	*	CoB	*	C&C

RC = Reserve Capacity
LOS = Level of Service
* = Four-Way STOP: the reserve capacity concept is not applicable.
CoB = LOS C or better.
C&C = Between LOS C and capacity.

Source: Wilbur Smith Associates, July 1990

Traffic Controls

As of November 1990, there are no signalized intersections within the city limits. The busiest intersection in the city, Grant Avenue (State Highway 128) and Railroad Avenue, is controlled by four-way STOP signs, aided by a flashing red light on Grant Avenue. STOP signs are located at numerous locations throughout the city.

Traffic Accident Pattern

The history of traffic accidents on Winters' streets is affected by both traffic volume and impediments to traffic. Consistent with their relatively higher volumes, Grant Avenue, Railroad Avenue, and Main Street have had the highest incidence of traffic accidents in the city. In fact, the accident rates on these streets exceed the combined accident rate of all other streets in the city. Table V-5 provides a comparison of accident reports on the three main streets in the city with all other streets with reported traffic accidents for the years 1989 and 1990. This is consistent with the higher traffic volumes carried by these streets.

TABLE V-5

REPORTED TRAFFIC ACCIDENTS
1989 AND 1990

Streets	1989	1990
Grant Avenue	21	12
Railroad Avenue	10	14
Main Street	7	10
All Others	14	26

Source: Winters Police Department, November 1990.

Parking

Parking in the city, and in the central business district in particular, is limited primarily to on-street spaces. In addition to on-street spaces, there are two major public lots in the downtown area. A sixty-space lot at the Community Center is available for City business and commercial patron use. A joint City-Caltrans park and ride lot provides fifty spaces on Railroad Avenue, and a four- to six-space public parking lot is located directly across the street from City Hall. In addition, there currently (1991) are 110 on-street spaces in the downtown area between Railroad Avenue and Second Street on both sides of Main Street.

According to merchants, and based on an occupancy survey conducted in June 1990, there is sufficient parking available in the downtown business district. According to the survey, the midday utilization rate is approximately 40 percent, with a peak occurring between noon and 1:00 P.M.

The Winters *Zoning Ordinance (Title VIII, Zoning and Land Development)* contains requirements for off-street parking based on types of land uses. The following partial listing describes parking requirements for typical uses in the city:

- Single Family and Two Family Dwellings - 2 spaces per dwelling unit
- Multi-Family Dwellings - 1½ spaces per dwelling unit
- Churches, Mortuaries, and Funeral Homes - 1 space per four seats in main assembly area
- Convalescent and Nursing Homes - 1 space per four beds

- General Commercial, Manufacturing, Warehousing, and General Storage - 1 space per 2,000 square feet of gross floor area or 1 space per two employees

- Retail Stores and Business/Professional Uses - 1 space per 250 square feet of gross floor space

The *Zoning Ordinance* contains provisions for payment of in-lieu parking fees in certain instances when a proposed use cannot provide required off-street parking. The in-lieu fee is intended to fund the acquisition of public parking areas in the downtown area.

BUS SERVICE

The Yolo County Transit Authority (YoloBus) provides transit service to Winters. The service, which was inaugurated in November 1990, is provided under a joint powers agreement between the County and the Cities of Winters, Woodland, Davis, and West Sacramento. Currently (1992), YoloBus makes four round trips daily on weekdays between United Market in Winters and the Amtrak Station in downtown Davis, with service to Deganawidah Quetzalcoatl University (DQU) along the way. This service traverses Winters via a loop, serving Grant Avenue westbound and Abbey and Main Streets eastbound. Three round trips are provided on Saturdays, with the eastern terminus at the County Fair Mall in Woodland.

Greyhound Bus Lines and Amador Stage Lines also serve the region. Greyhound includes Winters as a request stop only.

AIR TRANSPORTATION

Sacramento Metropolitan Airport (Metro), located approximately 25 miles northeast of Winters, is the only regional provider of passenger and cargo air transportation services for the Winters area. It operates largely as an origin-destination point (rather than stop-over point) for both interstate and commuter airlines.

International air service is available to Winters' residents at Oakland and San Francisco airports, both between 60 and 65 miles to the southwest.

There are four general aviation, municipal airport facilities in close proximity to Winters. They are Yolo County Airport, located approximately 5 miles to the east on Covell Road, between Winters and Davis; University Airport, located about 10 miles to the east at U.C. Davis; Watts Airport, located 12 miles to the north, near Woodland; and Nut Tree Airport, located approximately 10 miles to the south in Vacaville.

Travis Air Force Base is approximately 18 miles to the south.

RAIL SERVICE

An Amtrak passenger train station is located in downtown Sacramento, and another station is located in Davis. Two Amtrak passenger train lines stop in downtown Sacramento. The popular Coast Starlight runs once daily in each direction between Seattle and Los Angeles; the California Zephyr runs daily between San Francisco and Chicago, with much of its regional use by vacationers bound for Reno and the Lake Tahoe area. An Amtrak bus provides connections in Stockton twice daily in each direction to the San Joaquin Valley train route, with service from Richmond to Bakersfield, and bus connections to points south of Bakersfield.

TAXI SERVICE

There is currently no taxi service available in the Winters area.

RIDESHARING

The California Department of Transportation (Caltrans) operates two key programs which provide alternatives to single-occupancy vehicle commuting: park and ride lots and ridesharing.

Caltrans maintains a fifty space park and ride lot in downtown Winters, at the intersection of Railroad Avenue and Main Street. From the lot, commuters are able to connect either with Yolobus or participate in the rideshare program.

The Caltrans rideshare program includes two principal components available to Winters area residents: van pools and a rideshare referral service. To utilize the rideshare program, interested commuters submit home origin/job destination information to Caltrans for inclusion in a computer database. Caltrans then attempts to match participants with similar characteristics to either van pools or carpools. Information relative to the extent to which Winters area residents participate in the rideshare program is not readily available.

BIKEWAYS

Yolo County's *Bikeway Plan: Bike Routes and Priorities* (June 1982) indicates two bicycle routes in the Winters area. An existing Class II (bike lane within street pavement) route is located on both sides of Highway 128, from Pleasant Valley Road to Monticello Dam. The *Bikeway Plan* indicates a proposed Class II route on County Road 89, from the city limits to Highway 16.

CONGESTION MANAGEMENT PLAN

In June 1990, voters approved legislation (*AB 1791*, effective August 1, 1990) which increased funding for California's transportation system. With this legislation came new requirements for the transportation planning process and new procedures for funding transportation improvements. A key part of the new process is the Congestion Management Program (CMP). The purpose of the CMP is to improve the planning and decision-making relationship between land use, transportation, and air quality.

The law provides that a Congestion Management Agency (CMA) be established in each county to prepare, adopt and monitor the CMP. The Yolo County Transit Authority (YCTA) has been designated the CMA in Yolo County. The YCTA Board of Directors serves as the decision-making authority of the CMA.

Pursuant to state law, the Yolo County Transit Authority adopted the *Yolo County Congestion Management Program (CMP)* July 24, 1991. State law and the *CMP* require Winters and the other local governments in Yolo County to adopt procedures for monitoring local conformance with the *CMP*, including a land use impact program and a trip reduction ordinance. The City must also maintain Level of Service "D" on better designated roadways in the *CMP* or develop deficiency plans to address violations of this standard. The *CMP* identifies Railroad Avenue between the northern city limits and the Solano County line and the entire length of Highway 128/Grant Avenue within the city limits (including the I-505 overpass) as roadways which must maintain a Level of Service "D" or better.

GLOSSARY

Bicycle Lane (Class II facility)
A corridor expressly reserved for bicycles, existing on a street or roadway in addition to any lanes for use by motorized vehicles.

Bicycle Path (Class I facility)
A paved route not on a street or roadway and expressly reserved for bicycles traversing an otherwise unpaved area. Bicycle paths may parallel roads but typically are separated from them by landscaping.

Bicycle Route (Class III facility)
A facility shared with motorists and identified only by signs, a bicycle route has no pavement markings or lane stripes.

Bikeways
A term that encompasses bicycle lanes, bicycle paths, and bicycle routes.

Level of Service (LOS)
A scale that measures the amount of traffic a roadway may be capable of handling on a roadway or at the intersection of roadways. Levels range from A to F, with A representing the highest level of service.

Para-transit
Refers to transportation services and that operate vehicles, such as buses, jitneys, taxis, and vans for senior citizens, and/or mobility-impaired.

Parking, Shared
A public or private parking area used jointly by two or more uses.

Parking Area, Public
An open area, excluding a street or other public way, used for the parking of automobiles and available to the public, whether for free or for compensation.

Peak Hour/Peak Period
For any given roadway, a daily period during which traffic volume is highest, usually occurring in the morning and evening commute periods.

Rideshare
A travel mode other than driving alone, such as buses, rail transit, carpools, and vanpools.

Right-of-way
A strip of land occupied or intended to be occupied by certain transportation and public use facilities, such as roadways, railroads, and utility lines.

Scenic Highway Corridor
The area outside a highway right-of-way that is generally visible to persons travelling on the highway.

Scenic Highway/Scenic Route

A highway, road, drive, or street that, in addition to its transportation function, provides opportunities for the enjoyment of natural and man-made scenic resources and access or direct views to areas or scenes of exceptional beauty or historic or cultural interest. The aesthetic values of scenic routes often are protected and enhanced by regulations governing the development of property or the placement of outdoor advertising.

Transit

The conveyance of persons or goods from one place to another by means of a local, public transportation system.

Transit, Public

A system of regularly-scheduled buses and/or trains available to the public on a fee-per-ride basis.

Transportation Systems Management (TSM)

A comprehensive strategy developed to address the problems caused by additional development, increasing trips, and a shortfall in transportation capacity. Transportation Systems Management focuses on more efficiently utilizing existing highway and transit systems rather than expanding them. TSM measures are characterized by their low cost and quick implementation time frame, such as computerized traffic signals, metered freeway ramps, and one-way streets.

Trip

A one-way journey that proceeds from an origin to a destination via a single mode of transportation; the smallest unit of movement considered in transportation studies. Each trip has one "production end," (or origin--often from home, but not always), and one "attraction end," (destination). (See "Traffic Model.")

Trip Generation

The dynamics that account for people making trips in automobiles or by means of public transportation. Trip generation is the basis for estimating the level of use for a transportation system and the impact of additional development or transportation facilities on an existing, local transportation system. Trip generations of households are correlated with destinations that attract household members for specific purposes.

Vehicle Miles Traveled (VMT)

A key measure of overall street and highway use. Reducing VMT is often a major objective in efforts to reduce vehicular congestion and achieve regional air quality goals.

Volume-to-Capacity Ratio

A measure of the operating capacity of a roadway or intersection, in terms of the number of vehicles passing through, divided by the number of vehicles that theoretically could pass through when the roadway or intersection is operating at its designed capacity. Abbreviated as "v/c." At a v/c ratio of 1.0, the roadway or intersection is operating at capacity. If the ratio is less than 1.0, the traffic facility has additional capacity. Although ratios slightly greater than 1.0 are possible, it is more likely that the peak hour will elongate into a "peak period."

PERSONS CONSULTED

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Luken, Michael, Yolo County Development Agency

Zumal, Ann, California Department of Transportation (Caltrans)

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CHAPTER VI

PUBLIC FACILITIES AND SERVICES

INTRODUCTION

City development is dependent on an elaborate network of public facilities and services. This chapter focuses primarily on water, sewage collection and treatment, drainage, schools, fire protection, and law enforcement facilities and services. Transportation facilities and services are discussed separately in Chapter V and parks and recreational facilities are discussed in Chapter VII.

Figure VI-1 shows the locations of existing public facilities in the city, excluding sewer, water, and storm drainage pipelines.

WATER SERVICE

The City owns and operates its own water system and relies on groundwater for its domestic water supply. The City has Putah Creek underflow water rights (rights to the water flowing in aquifer gravels beneath the creek) of 1.5 cubic feet per second (cfs), but does not have rights to use of water directly from the creek. Currently (1992), the city is not restricted in the amount of groundwater (that is not taken from Putah Creek underflow) that it pumps.

The City's water supply system currently (1992) includes five wells. Each well is designed to draw up to 1,500 gallons per minute. Existing water demand is estimated to be 1.45 million gallons per day (mgd), or approximately 300 gallons per day (gpd) per capita, all uses included. Figure VI-2 shows the existing water supply system within the city and pressure zone locations. The three oldest wells are located in Zone 1. One of the older wells is not currently (1992) in service and will be abandoned and replaced by a new well. The two remaining wells were added to outlying areas in Zones 4 and 5 as development spread to the north and west.

The water distribution system includes two old, elevated storage tanks, with capacities of 100,000 gallons each, thought to have been built around 1911. The 100-foot tall storage tanks provide for a maximum static water pressure of 34 pounds per square inch (psi). The maximum operational pressures throughout the city are determined by Tank 1. Because of the age and low elevation of the tanks, the City plans to remove them from service and replace them with variable frequency drives and backup generators at existing wells.

The distribution system is made up primarily of pipes ranging in size from 2- to 10-inch in diameter, and one 12-inch main, which runs down Grant Avenue. Pipes range in age from four to 100 years old. The City plans to replace sections of the existing system which are 30 to 100 years in age.

In Zone 1, there are several areas in which fire hydrants do not meet the recommended 1,500 gpm for firefighting requirements. In addition, in almost all parts of the existing water supply system, pressures below the required residual of 20 psi can be found. In the past, the fire tanker truck has made up for these deficiencies.

Monitoring data indicated a fairly stable groundwater level over the past 30 years (1960 - 1990) in the Winters area. Based on limited available data, there does not appear to be an overdraft problem in the area. In April 1991 CH2M Hill, under contract to the City of Winters, conducted a ground water study, which concluded that projected growth through the year 2010 could be accommodated without causing an overdraft of groundwater. Additional information concerning groundwater supply and quality is provided in Chapter VIII, Natural Resources. While the City wells are expected to continue to provide

sufficient water for projected growth in the area, the City is interested in exploring available alternatives to well water. Accordingly, the City has recently joined with other water suppliers in Yolo County to share in funding a study of methods of securing access to surface water.

The City adopted a new *Water System Master Plan* in 1992.

SEWAGE COLLECTION, TREATMENT AND DISPOSAL

The City owns and operates its own sewage collection and treatment system. The collection system consists of approximately 16 miles of main sewer line ranging in size from six to 18 inches in diameter. Sewage generated within the city flows by gravity through an 18-inch pipe to the City's former treatment plant located near Putah Creek at the southern end of East Street. Wastewater from El Rio Villa east of I-505 is also pumped into the City's 18-inch trunkline. The former treatment plant functions simply as a collection point and pump station, with a peak operating capacity of 2.7 million gallons per day.

From the pump station sewage is pumped north approximately 2.7 miles through a 14-inch diameter force main to the City's treatment plant, located north of the city near the junction of County Road 88 and County Road 32a. Figure VI-3 shows the existing sewer system in Winters.

The City's existing sewage treatment facilities, completed in 1980, consist of four aeration basins, one polishing pond, three storage ponds, and a 140 acre reuse area. Following addition of chlorine, wastewater is sprayed onto pastureland in the reuse area by large-nozzle sprinklers.

The capacity of the treatment plant is 1.0 mgd, assuming dry-weather conditions. However, the capacity of the plant is impaired by wet weather to as little as 0.7 mgd. Accordingly, 0.7 mgd is the assumed treatment capacity. Currently (1992), Pond No. 3 is being operated at half capacity because of suspected leaking problems at full capacity. Under these conditions, the treatment facilities can provide services to an estimated 488 more homes. If another 40 acre-foot pond is constructed and Pond No. 3 continues to be operated at half capacity, an estimated 815 more homes can be served. Once this capacity is reached, an entirely new treatment plant will need to be built.

The City adopted a new *Sewer System Master Plan* in 1992.

STORM DRAINAGE AND FLOOD PROTECTION

The existing (1992) storm drainage system consists of 17 main lines installed at various times over the past 100 years. According to a recent study, nine of the 17 main storm drain lines appear to be undersized. The majority of the storm drains, which range in size from 6 to 60 inches in diameter, consist of reinforced concrete pipe (RCP), with several short segments consisting of plastic pipe (PVC) and corrugated metal pipe (CMP). All storm drain lines drain to either Putah Creek or Dry Creek. Figure VI-4 shows the existing storm drainage system.

Most flooding problems in the area have been caused, in part, by impeded flows in Moody and Chicahominy Sloughs, located north and east of the city. Limited channel capacity and culvert capacity at County Road 89 and I-505 have been the primary contributors to flooding in Moody Slough. When storm waters have overtopped these channels, flows have moved in a southeasterly direction until diverted towards Winters by I-505. The Winters Canal has also been a source of flooding in the area. Local and regional hydrology flooding problems are also discussed in Chapter IX, Health and Safety.

The City adopted a new *Storm Drainage System Master Plan* in 1992.

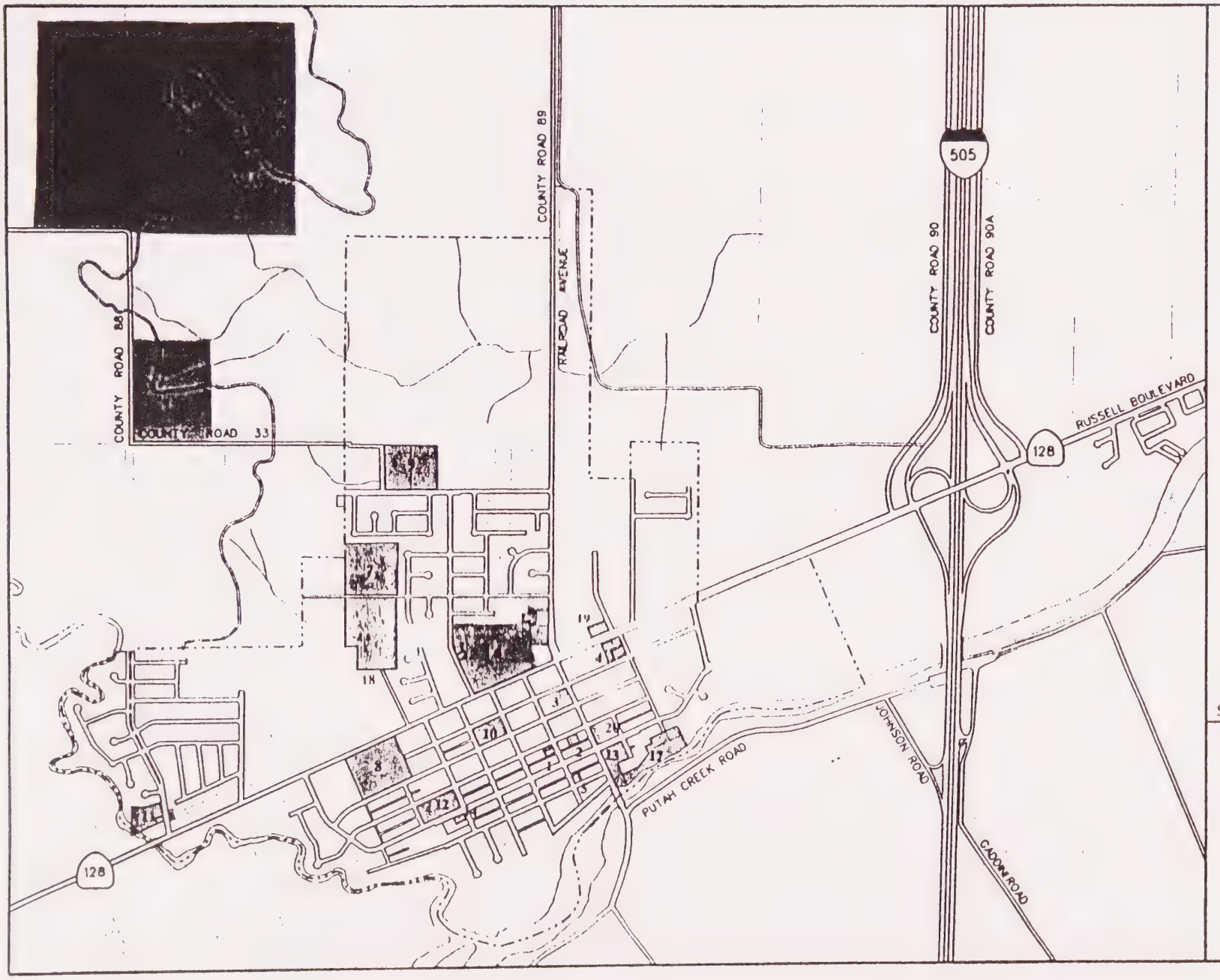


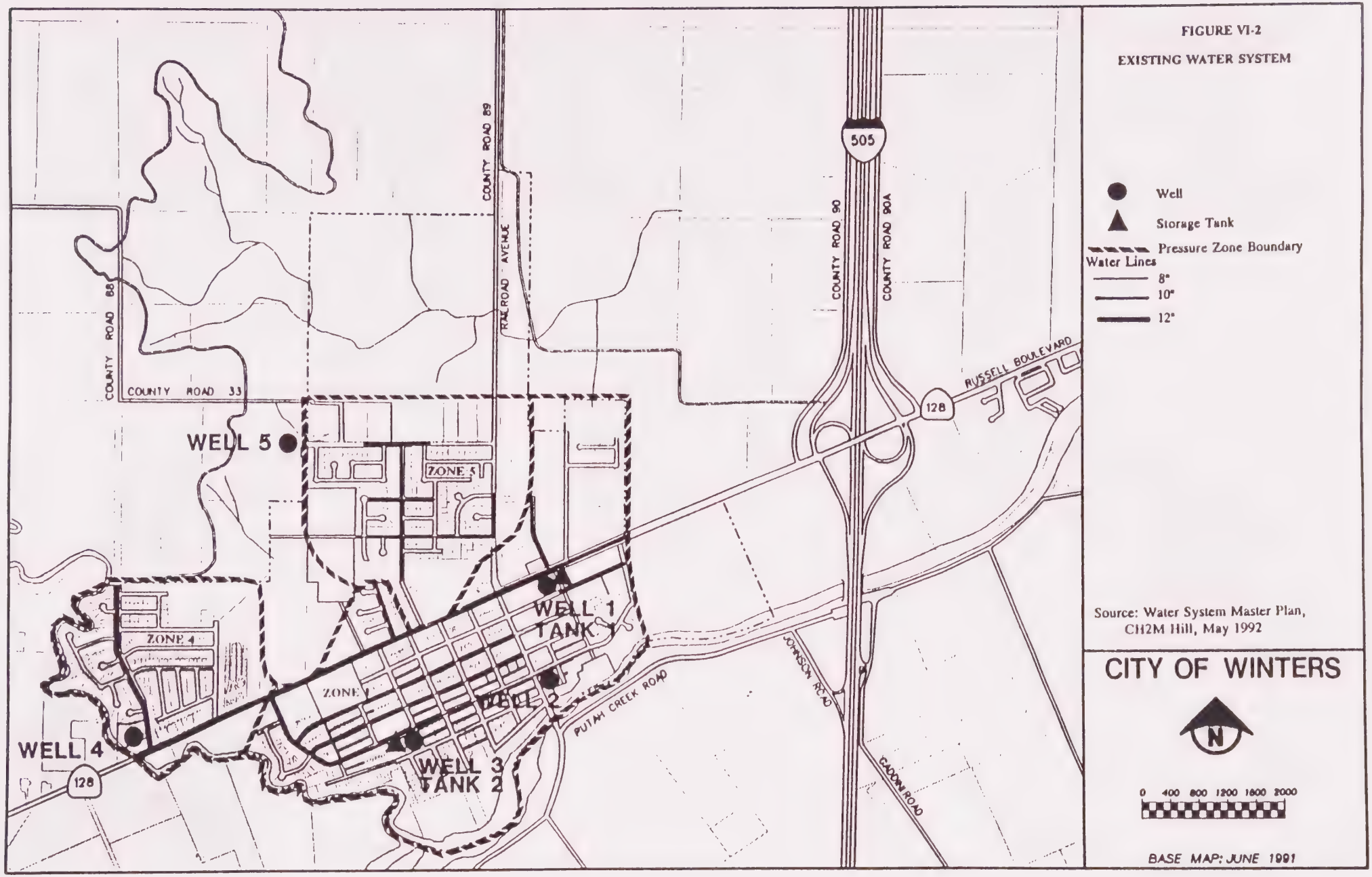
FIGURE VI-1

PUBLIC FACILITIES

1. City Hall/Police Department
2. Fire Department
3. Post Office
4. City Corporation Yard
5. Library
6. Winters High School
7. Winters Middle School
8. Wagonner Elementary School
9. Agricultural Site
10. Continuation School
11. Dry Creek Park
12. City Park
13. Community Center and Rotary Park Complex
14. Winters Scout Cabin
15. Landfill Site (Not Operational)
16. Wastewater Treatment Plant and Spray Fields
17. Pump Station
18. Cemetery
19. School Maintenance Yard
20. Park and Ride Lot

Source: City of Winters, 1991

CITY OF WINTERS


COUNTY ROAD 89
RAILROAD AVENUE
COUNTY ROAD 88
COUNTY ROAD 33
505
COUNTY ROAD 90
COUNTY ROAD 90A
RUSSELL BOULEVARD
128
WELL 5
ZONE 5
WELL 1
TANK 1
ZONE 4
ZONE 3
WELL 2
PUTAH CREEK ROAD
JOHNSON ROAD
GADDIS ROAD
WELL 4
WELL 3
TANK 2
128
FIGURE VI-2
EXISTING WATER SYSTEM
Well
Storage Tank
Pressure Zone Boundary
Water Lines
8"
10"
12"
Source: Water System Master Plan,
CH2M Hill, May 1992
CITY OF WINTERS
N
0 400 800 1200 1600 2000
BASE MAP: JUNE 1991

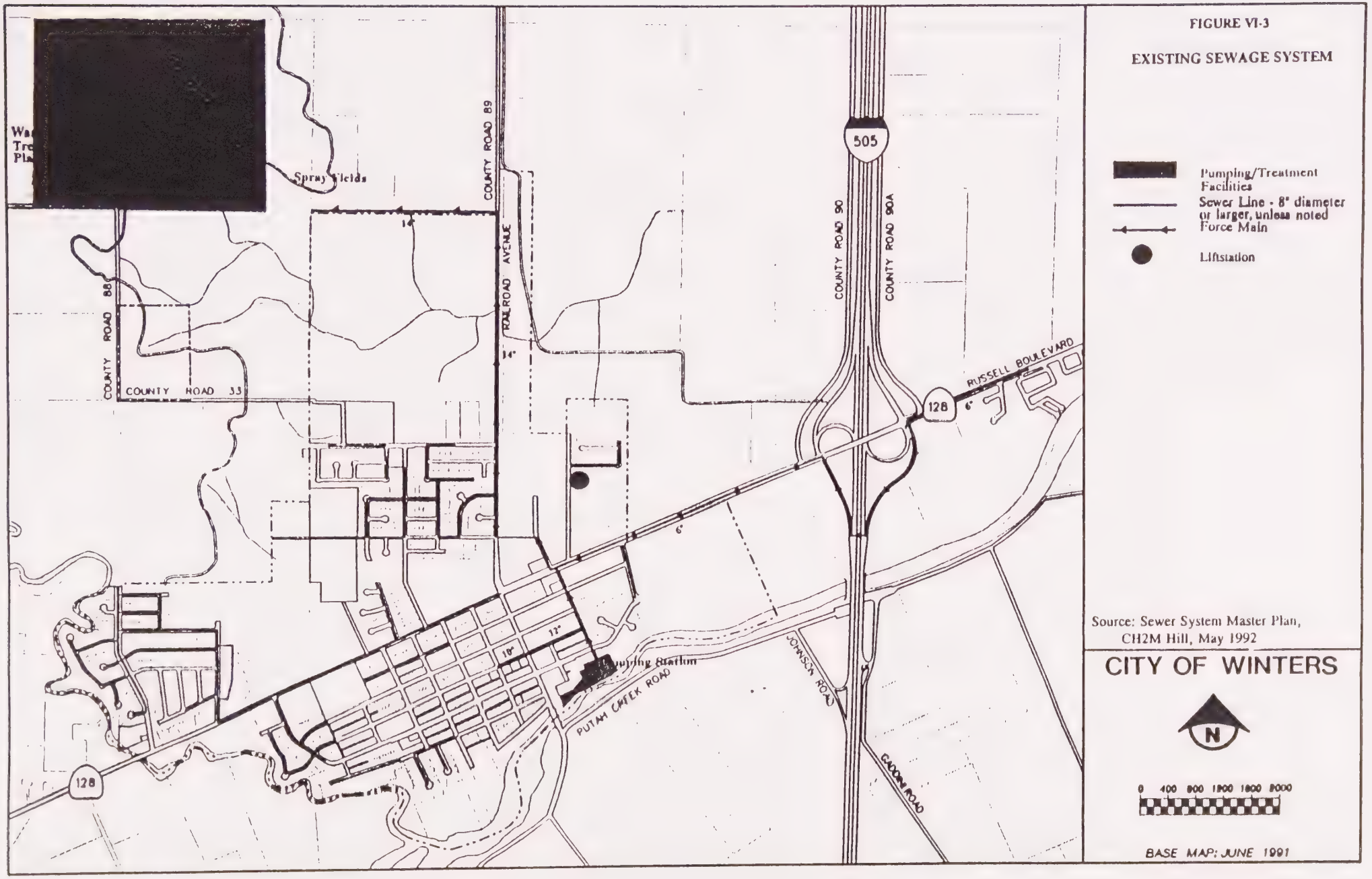


FIGURE VI-3

EXISTING SEWAGE SYSTEM

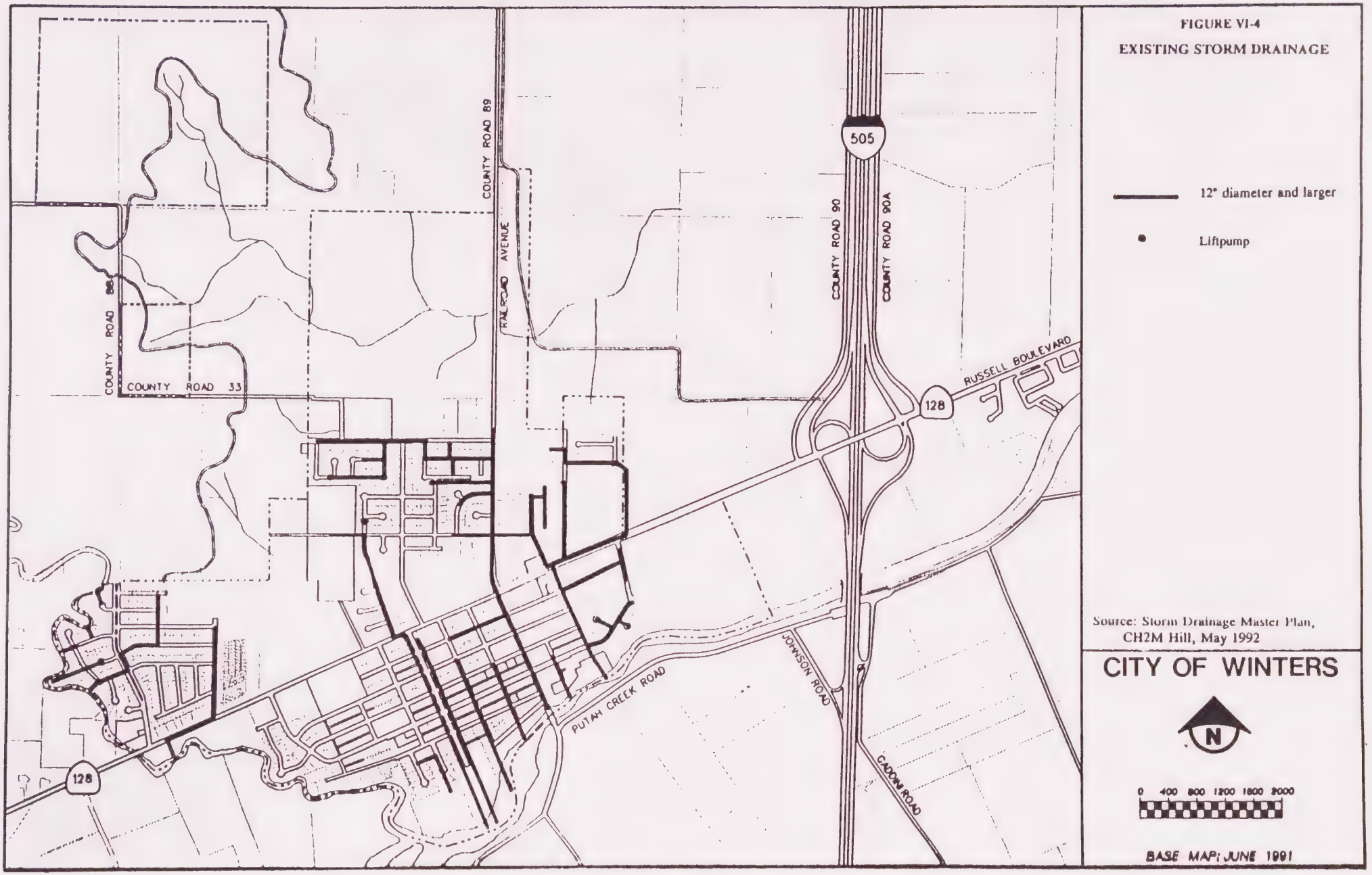


FIGURE VI-4

EXISTING STORM DRAINAGE

SCHOOLS

Winters Joint Unified School District

The Winters Joint Unified School District provides kindergarten through high school educational services to residents of the city, and accepts students from areas outside the city in unincorporated Yolo and Solano counties. An estimated ten percent of the district's total student enrollment resides outside the city of Winters.

Following is a description of the District's existing educational facilities:

John Clayton Kindergarten. Located in Solano County. Capacity 162 students. 2.5 acre site.

Waggoner Elementary School. Located at Edwards and Haven Streets. Grades 1-5. 10 acre site. 725 student capacity. Fifteen of the classrooms are relocatables.

Winters Middle School. Located on Anderson Avenue. Grades 6-8. 10 acre site. 375 student capacity. Seven classrooms are relocatables.

Winters High School. Located at Grant and Railroad Avenues. Grades 9-12. 20 acre site. 450 student capacity. One relocatable classroom.

Joe Aquiar Agricultural Site. Located on Niemann Street. Affiliated with the high school. 10 acre site. 54 student capacity.

Wolfskill Continuation High School. Located in Solano County at the intersection of Boice Road and Bowman Road. Grades 9-12. 1.7 acre site. 30 student capacity.

District Offices. Located at 47 Main Street, Winters.

Total 1990/1991 enrollment was 1,611 students; and 1,682 students were projected to attend in the 1991/1992 academic year. Of a total of 66 classrooms used by the District in 1990/91, 23 were "relocatable" units, which the District does not consider permanent solutions to providing educational services. The District provides busing services for students who live outside the Winters city limits.

The District's school facilities are currently (1990/91) operating near or above desirable capacity, and total District facility space remains for less than 100 additional students in all categories. Waggoner Elementary School currently relies on relocatable classrooms for about 50 percent of its students, and with a projected enrollment of 730 students in the 1991-1992 academic year, would be effectively over capacity by 155 students. The District considers it possible that with the stopgap remedies now in place the school can accommodate 65 more student, and could serve more students by shifting first-graders to relocatable classrooms placed at the Clayton School. Winters Middle School is the closest to actual capacity, and can ideally accommodate only five additional students, through the use of one relocatable classroom and a planned addition to the building would increase the school's capacity to about 405 students. Winters High School has an optimum capacity for only 30 more students.

The District does not currently (1992) own any sites for additional school construction, but it intends that any new school will be a Middle School (6-8), and that the existing Winters Middle School will be

converted to an elementary school. The District has indicated that it intends to retain the use of the agricultural school in its present location.

Under contract with local day care providers, the District provides limited day care services for kindergarten-age children who live in the Lake Berryessa area and attend school in Winters. This service allows these children to spend a full day in Winters, eliminating the need for more than one bus run to Lake Berryessa.

The student generation rates per household used by the District are as follows: kindergarten (K) and grades 1-5, 0.45; 6-8, 0.23; and 9-12, 0.30. The ideal standards for school size are 26 students per kindergarten classroom, 500 to 550 per elementary school, 800 to 900 per middle school, and 1,200 to 1,400 for a high school. Under certain circumstances, these school limits may be increased to 650 for elementary schools, 1,000 for middle schools, and 1,600 for a high school. For all categories the optimum ratio is one classroom per 27 students, with 15 percent of all classrooms available for special programs.

Although Winters is a relatively compact small town which would normally be suitable for walking, sidewalks exist only in limited areas for school children to walk safely to the schools, which increases the need for school bus services.

State legislation, *AB 2926* (1986), allows school districts to levy school impact fees on new development. The legislation limits the fees to a current maximum of $1.58 per square foot of residential floor space and $0.26 per square foot of non-residential floor space. The fees may be used for land acquisition and actual construction of schools. The Winters Joint Unified School District currently (1991) levies the maximum impact fees allowed by State law. These fees, however, are not sufficient to finance site acquisition and school construction. The State provides for interim relocatable classrooms at low rents, funding for rehabilitation of buildings over 30 years old, and, under the Greene Lease-Purchase program, site acquisition, design, and construction of new school facilities. This state assistance, which also relies on voter approval of school bond initiatives, is limited, however, and there are long waiting lists of applicants.

Alternatives to permanent construction being considered by the District include:

- Year-round programs. Year-round schools can increase effective school capacity by 25 percent.
- Double sessions.
- Leased classrooms or temporary extra classrooms. These have already been widely used by the District to accommodate increases in enrollment.
- Magnet programs and other voluntary mechanisms to divert students from crowded schools to less crowded sites.
- Core/relocatable school plans which plan for a portion of a new school to be constructed of removable classroom buildings.

The following is a list of facility needs developed by the District in 1991:

1. Add facilities to the current sites to accommodate growth on an interim basis until new facilities are constructed.

2. Convert the existing 10-acre middle school to an elementary school.

3. Develop a 10-acre elementary school for 500-600 students.

4. Obtain a 40-acre high school site adjacent to the present Agricultural Site for a future high school to house up to 1600 students.

5. Convert the existing high school site to a middle school.

6. Modify existing facilities at the Agricultural Site to make them compatible with adjacent residential areas.

7. Add auxiliary facilities as needed to accommodate growth in the areas of transportation, storage, food services and administration. (This is an ongoing process that needs to be accomplished in stages as the above recommendations come to fruition.)

8. Add additional elementary schools as needed.

The District also maintains administrative, maintenance, and operations facilities at various locations within the city.

Colleges, Universities, and Other Educational Facilities

City residents have access to the Solano Community College located in Suisun City, as well as the Yuba Community College, which has a campus in Woodland. The Woodland Joint Unified School District offers adult education classes.

In addition, the University of California, Davis, and California State University, Sacramento, are within easy commuting distance.

A parent-cooperative preschool is operated by the Yolo Housing Authority. In addition, there are numerous private day care and pre-school facilities located throughout the community.

FIRE PROTECTION

The City of Winters contracts with the Winters Fire Protection District for its fire protection services. The Fire District is headquartered in Winters and serves the city and the surrounding unincorporated area. The service area for the District is 90 square miles. The District receives 44 percent of the City's ad valorem tax to pay for city services and the balance of its budget comes from Yolo County. As shown in Table VI-1, the District responded to almost 500 service calls in 1990.

Existing (August 1991) firefighting equipment reflects the requirement of fighting both structural fires within the city and wildland fires in the surrounding territory. The Fire District also normally provides first response in emergencies. Available equipment includes the following:

- 5 Ton Ford 500 GPM Pump, 1000 Gal. Tank
- 1965 White Super Mustang 500 GPM Pump, 1000 Gal. Tank
- 1971 5 Ton International Vanpelt 1000 GPM Pump, 500 Gal. Tank
- 1954 5 Ton MGC Vanpelt 1000 GPM Pump, 500 Gal. Tank
- 1967 5 Ton Chevrolet Grass Engine 150 & 350 GPM. Pumps, 500 Gal. Tank

- 1966 5 Ton Chevrolet Grass Engine 150 & 350 GPM. Pumps, 500 Gal. Tank
- 1968 1 1/4 Ton Jeep Brush Unit 65 GPM Pump, 200 Gal. Tank
- 1969 1 1/4 Ton Jeep Brush Unit 65 GPM Pump, 200 Gal. Tank
- 1954 Fomite Lafrance 85 Ft. Aerial Truck
- 1990 3/4 Ton Ford 4X4 65 GPM Pump, 90 Gal. Tank
- 1958 2/ 1/2 Ton Reo 90 GPM Pump, 1200 Gal. Tank
- 1971 International Tractor and 1955 4000 Gal. Tank Trailer, 500 GPM Pump
- 1970 1 Ton Chevrolet Rescue Unit with Rescue Tools
- 1978 1 Ton Chevrolet Gruman Als Type 1 Ambulance
- 1974 1 Ton Ford Type 2 BLS Ambulance

Current (August 1991) staffing consists of the following:

- Fire Chief
- Deputy Chief
- Two Captains
- Secretary
- 26 Volunteers

Performance of fire departments and districts are rated on the ISO (Insurance Services Office) scale from 1 to 10, a rating of 1 being the best and 10 being no protection at all. Major criteria used for the ISO rating include: fire alarm communication (i.e., dispatch capabilities; fire department equipment; on-duty personnel and training competency, and water supply. The District's ISO rating is 8 for the District, and 6 for the city area. The District responds to calls for structural, grass, and vegetation fires, and to calls for medical aid. The District cannot provide fire protection for buildings over 45 feet in height or for heavy industrial and hazardous material fires.

Minimum standards for new development are consistent with ISO requirements so that the city's insurance rating can be maintained or improved. Accordingly, all new residential development must be able to provide water flow of at least 1,500 gallons per minute and all industrial uses must provide at least 3,000 gallons per minute. Residential structures must be built with noncombustible roofing. All industrial buildings over 4,000 square feet must have automatic sprinkling systems.

Other requirements for new development include the following:

- Fire hydrant spacing shall be 300 feet.
- Pavement width shall be 20 feet for fire roads, and 20 feet for multi-use roads.
- Vertical clearance shall be 13 feet, 6 inches.
- Turning radius shall be 50 feet.
- All buildings shall have noncombustible roofing.
- All buildings 6,000 square feet or larger shall have sprinklers.
- All surface roads shall be in place prior to any construction taking place.
- All fire protection systems, including roadways, hydrants, and sufficient emergency equipment shall be in place and tested prior to construction.
- Fifty percent of all wells shall have a motor-generated backup.

Table VI-1 provides a summary of the District's incident responses for the years 1987 through 1990.

TABLE VI-1

WINTERS FIRE DEPARTMENT
SUMMARY OF ACTIVITY[1]
1987 to 1990

Activity	1987	1988	1989	1990
Fire	133	108	73	151
Medical aid	110	81	76	70
Transport	195	142	182	222
Public Assistance	12	17	11	20
False Alarm	21	22	11	13
Investigations	12	16	17	34
Total	**483**	**386**	**370**	**510**

[1] Includes the entire District, including the city, but excluding Dixon and Vacaville areas.

Source: Winters Fire Protection District

LAW ENFORCEMENT

The Winters Police Department is located in a separate building adjacent to the City Hall on First Street at Abbey. The Police Department provides 24-hour service throughout the city and has a reciprocal Office of Emergency Services (OES) area understanding to assist the County Sheriff in providing emergency service to the surrounding unincorporated area. The city constitutes a single patrol district, although records are kept by city sectors. The total service area for the Department is one and one-half square miles.

Current (August 1991) staffing consists of the Police Chief, one sergeant, six patrol officers, one investigator, one full-time and one part-time clerk. There are six reserve officers. Dispatch is handled through a central office in Woodland. There is a minimum of one and a maximum of three persons on each eight-hour shift.

The statewide average number of police officers per 1,000 population is 1.7. The Department has an existing ratio of 1.66 officers per 1,000 population, and has a goal of increasing this ratio to 1.8 sworn officers per 1,000 residents.

Emergency response time for most areas of the city is within two minutes. Non-emergency response time is 5 to 10 minutes. The primary type of crime reported in the area is theft.

Police headquarters facilities measure about 2,000 square feet, including space for records, equipment, evidence storage, holding cell, training room (squad room), the sergeant's office, and the Chief's office. An unsecured outside lot is used to park three marked squad cars, one unmarked car, and a motorcycle for off-road patrol.

Gas, Electricity, and Telephone

Pacific Gas & Electric Company (PG&E) provides gas and electricity service to Winters. Gas lines are located underground along street rights-of-way or in separate easements. Electric lines are typically carried overhead on power poles throughout the older parts of the city. Power lines follow street rights-of-way or separate easements.

The main electrical supply for Winters is a 60 kilovolt (Kv) overhead transmission line located east of the city. Power is brought to the Winters substation southeast of the I-505 and Highway 128 interchange, and to the Putah Creek substation near Oak Creek. Putah Creek Substation is supplied by a 115 Kv feeder.

Telephone service in Winters is provided by Pacific Bell. Overhead lines are carried on power poles throughout most of the older parts of the city. Service is constructed underground in all new development.

GLOSSARY

Capital Improvement Program (CIP)

A program, administered by a city or county government and reviewed by its planning commission, which schedules permanent improvements, usually for a minimum of five years in the future, to fit the projected fiscal capability of the local jurisdiction. The program generally is reviewed annually, for conformance to and consistency with the general plan.

Detention Dam/Basin/Pond

Dams may be classified according to the broad function they serve, such as storage, diversion, or detention. Detention dams are constructed to retard flood runoff and minimize the effect of sudden floods. Detention dams fall into two main types. In one type, the water is temporarily stored, and released through an outlet structure at a rate which will not exceed the carrying capacity of the channel downstream. Often, the basins are planted with grass and used for open space or recreation in periods of dry weather. The other type, most often called a retention pond, allows for water to be held as long as possible and may or may not allow for the controlled release of water. In some cases, the water is allowed to seep into the permeable banks or gravel strata in the foundation. This latter type is sometimes called a water-spreading dam or dike because its main purpose is to recharge the underground water supply. Detention dams are also constructed to trap sediment. These are often called debris dams.

Groundwater

Water under the earth's surface, often confined to aquifers capable of supplying wells and springs.

Groundwater Recharge

The natural process of infiltration and percolation of rainwater from land areas or streams through permeable soils into water-holding rocks that provide underground storage ("aquifers").

Infrastructure

Public services and facilities, such as sewage-disposal systems, water-supply systems, other utility systems, and roads.

Public and Quasi-public Facilities

Institutional, academic, governmental and community service uses, either publicly owned or operated by non-profit organizations.

School District

Winters Joint Unified School District.

Storm Runoff

Surplus surface water generated by rainfall that does not seep into the earth but flows overland to flowing or stagnant bodies of water.

PERSONS CONSULTED

Beck, Perry, City Manager, City of Winters

Dozier, Scott, Deputy Fire Chief, City of Winters

Gooden, Steve C., Chief of Police, City of Winters

Hutchinson, Amelia, Public Works Coordinator, City of Winters

Jackson, Stephen, City Engineer, City of Winters

Kananega, Ets, Supervisor, Yolo County Library

Kidder, David, Fire Chief, City of Winters

Mendoza, Angelican, Planning Department, City of Winters

Roberts, Michael, Superintendent, Winters Joint Unified School District

Wright, Barbara, Assistant Librarian, Yolo County Library

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CHAPTER VII

RECREATIONAL AND CULTURAL RESOURCES

INTRODUCTION

Winters has a variety of recreational, cultural, and archeological resources. These resources take several forms, ranging from the contemporary city and its open space resources through the historic settlement and development period, to early native American habitation.

This chapter describes the recreational resources available to city residents, and the city's rich historical background. The majority of the information contained in this chapter is taken from published sources which describe, in great detail, the historical background of the city.

PARKS AND RECREATION

Parks

Existing parks and open space resources within the city include both City-owned and maintained facilities, and facilities owned by the Winters Joint Unified School District. School playfields are valuable open space resources available during non-school hours for both active and passive recreation. Park and recreation facilities are listed below and shown in Figure VI-1 in Chapter VI. Public Facilities and Services.

- City Park - This 3.4 acre park is located at the intersection of Fourth and Main Streets and includes passive and active use areas.
- Dry Creek Park - A 2.52 acre neighborhood park
- The Community Center and Rotary Park Complex
- The Winters Scout Cabin
- Winters High School
- Winters Middle School
- Waggoner Elementary School
- John Clayton School
- The Agricultural Facility

Nearby regional recreational facilities include Lake Berryessa, Solano Lake Regional Park, and the Putah Creek Fishing Access, and the Stebbins Cold Canyon Reserve.

The City's current (1991) *Land Development Ordinance* establishes requirements for park and recreational land dedication and/or in-lieu or development fees as a condition of new development. Provisions within this ordinance require sites for parks, recreational facilities and other public uses to be reserved where such uses are shown by the *General Plan* or a specific plan. Development fees levied by the City provide funds for parks and recreational facilities.

Following is a list of open space and recreation facilities for which city residents have expressed a need:

- Paths and trails, and passive open spaces along restored areas of Putah and Dry Creeks,
- A cultural center in or adjacent to the central business district, with facilities to serve a spectrum of the arts,
- A new swimming pool,
- One or more large, special purpose parks that would accommodate a variety of ball fields for baseball, soccer, football, etc, and a gymnasium,
- A golf course on appropriate portions of the wastewater facility site, particularly the spray fields adjacent to the treatment plant,
- An equestrian facility near the northwestern periphery of the city, connected to an equestrian and hiking trail system, and
- An interconnected community-wide network of open spaces that would include:
  - existing and future parks
  - one high school, one middle school, and four elementary schools,
  - recreational and cultural facilities,
  - tree-lined streets,
  - pedestrian and bicycle paths, and hiking and equestrian trails, in public rights-of-way, and where possible, in private easements (e.g., utility company easements, planned unit developments, etc.), and
  - one or more small urban plazas in the central business district.

CULTURAL EVENTS

Cultural events within the city include the following:

- Winters Youth Days - An annual event for the past 53 years which occurs on the last weekend in April.
- Harvest Days - Held in October of each year.
- Mexican Fiesta - An annual event held on the first weekend in October.

HISTORY OF WINTERS

The following history of Winters is based on information contained in the 1983 *Cultural Resources Inventory Project Report* and *Winters: A Heritage of Horticulture, a Harmony of Purpose.*

The settlement of the Winters area began in 1842 with the granting of 17,750 acres of land along Putah Creek by Governor Juan Basista de Alvarado to William Wolfskill, a southern California resident and naturalized Mexican citizen. It was not William, but his brother John, who came north to settle on this land. He established residence on the south side of Putah Creek and began his ranching career, planting

vegetable crops and the area's first fruit trees and grapevine. The land was originally called Rancho Rio de Los Putos, a name derived from the Patwin Indian village name of "Puta-to."

In 1850 another Wolfskill brother, Mathus, began another ranch nearby, south of the present Winters bridge. In 1865 Theodore Winters, a race horse breeder and entrepreneur, purchased this land. Winters is credited with promoting thoroughbred horseracing in the West, and the land he purchased soon held a ranch, stables, and a racetrack.

The first settlement in this area, and the nearest town, was Buckeye, approximately six miles to the northeast of Winters. Its post office was established in 1855; and by 1870, the town had a Masonic Hall, hotel, boarding house, blacksmith, saloon and schoolhouse. The growth of this small settlement was brought to an end, however, in 1875, when George B. and Andrew M. Stevenson, owners of the Vaca Valley Railroad Company, extended their line to the North bank of the Putah Creek. The Stevensons sought financial assistance from Winters and others to build a railroad bridge across Putah Creek. They also laid out a forty acre townsite which was named for Theodore Winters, from whom the land was purchased. The settlement of Buckeye was thus bypassed by the railroad; and the new town was established, inhabited partly by relocated Buckeye residents and their buildings.

As the northern terminus of the Vaca Valley Railroad, this new settlement grew rather quickly, and by 1876 the assessed valuation of the town had risen from $1,000 to $160,000. Winters became a busy agricultural and commercial center, with three trains daily, several new businesses, new hotels and saloons, a Wells Fargo office, and a number of new residences. Produce of the area included peaches, almonds, plums, pears, cherries, figs, oranges, olives, barley and wheat. This commercial activity, high for a while, declined somewhat when the railroad extended its terminus to Madison and much of the tonnage shifted to that location. Nevertheless, this era was one of growth, activity, and promise for the young settlement.

Early on, the Winters Advocate was established as the town's first newspaper, but it moved to Woodland in June of 1879 to become the Woodland Standard. The Winters Express, founded in January 1884, has remained in existence, through several owners, under that name until the present.

Although agriculture was and remains Winters' primary source of commercial activity, auxiliary activities helped the town grow slowly. There were traveling businessmen and visitors, as well as the merchants and ranchers who provided the town's base. Salesmen for a variety of goods and equipment would come to Winters, rent rooms and buggies, and canvass the farming communities nearby. In order to service such travelers, the Hotel DeVilbiss as built in 1889. The town held a number of other establishments to serve both residents and visitors; general merchandise stores, a restaurant, a grocery store, livery stables, a meat market, a tin store, drug store, shoemaker, blacksmith shops, wagon shops, printing office, post office, school, warehouses, silversmith, and Masonic Odd Fellows and Grange Lodges.

The earthquake of 1892 damaged Winters heavily. Many downtown buildings and residences required major repair (all were repaired within a month) and the Army was asked to provide tent shelters for the homeless during reconstruction.

The first Japanese families came to Winters in 1890. Most came as seasonal agricultural workers who lived on fruit ranches, while some settled on land at the creekside which had formerly been occupied by operators of a Chinese business district that was established when the railroad was built. The Japanese community built a school and community center at 710 Dutton Street in 1930. This building served as a regional meeting place, as well as a school where children could learn to read and write the Japanese language and learn something of their culture. Their business houses, some originally Chinese, included stores, a boarding house, restaurants and a church. The Asian business comunity remained until April

1948, when the buildings were razed by property owner Fred Smith. In spite of a four-year absence and economic upheaval when the Japanese were interned during World War II, this ethnic group has continued to impact the agricultural development of the region and the Sacramento Valley.

The 1890s also saw an influx of Spanish families into the region, many arriving via Hawaii. Brought here as contract laborers, they acquired over the years the ranch lands which they worked. Their numerous descendants have impacted all aspects of the community's development.

In late 1896, a meeting was held in the Opera House to seek the incorporation of the town of Winters. It was not until 1898, however, that the city was incorporated. A few months later, the Voluntary Fire Department was established.

In 1897, the Winters Dried Fruit company, which would become a major economic force in the community, was organized.

At the turn of the century, Winters embarked upon an era of civic pride and self-awareness. During the first two decades of the 20th century, a number of city improvements were undertaken, including the construction of new water and lighting systems, street amenities like a horse trough and drinking fountain, the establishment of a Board of Trade, a women's improvement club, regular city elections, and the laying of the first telephone line. The concrete bridge across Putah Creek was constructed in 1908, the longest of its kind west of the Mississippi river. Library facilities were incoroporated into the Yolo County free library system, and the first sewer plant wasconstructed. The first concrete sidewalks were laid before 1910.

Entertainment of the time included parades, picnics, band concerts, and holiday celebrations. Many enjoyed such leisure facilities as the Nickelodeon, a shooting gallery, and a merry-go-round. The Winters Concert Band was renowned throughout Northern California during the early 20th century.

The City Hall and a new two-story high school -- both designed by a noted California architect -- were constructed in 1916. Funds were raised for a public park by the Winters Improvement Club and a 100,000 gallon water tank and tower commissioned.

The town thrived on its commercial agricultural base. New fruit sheds and warehouses were constructed. The prune and apricot growers were organized in 1916, and the Winters Dried Fruit Company, established in 1897, handled the operation for the Association. It also purchased the Winters Canning company, remodeling the building into a modern plant that packed and shipped fruit to many foreign countries as well as the United States.

The growth of Winters was somewhat subdued during the years from 1920 to 1940. There was a refinement of early growth during the 1920s and some construction activity in the middle and late years of that decade. The strong agricultural base of the region sustained the town, its bank, and its industry through the ensuing Depression years, when dried apricots sold for as little as a nickel a pound. The productivity of the land and the determination of its inhabitants kept the town operating, but little construction appears to have occurred during the early 1930s. The Period Revival buildings common to areas that thrived during those years are largely absent from Winters. Rather than building new houses in ever more outlying areas, town residents enlarged and remodeled their existing family homes, predating the current trend for recycling by many years.

More recent years have seen some gradual changes in the composition and character of the population and in the prominence of different crops. There has been a transition of migrant farm workers to Mexican

families and contract labor. The predominant production of fresh fruits, particularly apricots, peaches and cherries, has gradually been replaced by the nut industries, due to marketing trends and the difficulty of handling the ripe fruits. Fruit packing plants have been relocated to the rural areas and current trends are reviving the 1920's practice of selling fruit directly to the public at the production ranch site. Agricultural lands north and east of Winters are chiefly devoted to rotation crops of tomatoes, grains, alfalfa, and rice.

ARCHITECTURAL OVERVIEW

The following summary of historical buildings and sites is excerpted from the 1983 *Winters Cultural Resources Inventory Project Report.*

The Winters Historic Resource Survey has revealed a variety of building types and styles. Building types inventoried include public buildings, industrial buildings and warehouses, a variety of commercial structures, churches, bridges and residences. Styles ranged from the simple vernacular buildings generic to ranching communities, to some fine architect-designed structures utilizing the newest Colonial, Classical and Mission Revival styles of the early twentieth century, as well as late Victorian Italianate designs.

These building types are expressed through a variety of styles which tend to reflect the economic strength and physical growth of the city, according to their numbers and their location. The presence in a city of a number of buildings of a particular architectural style suggests that the city experienced an active economy during the years in which that style was so popular. It is therefore possible to observe a city's past eras of growth and decline through its remaining architectural legacy.

In Winters, that kind of analysis has been made somewhat difficult by the considerable alteration of both downtown and neighborhood structures. However, the combined insights of historic research and careful visual analysis have provided much information. Some general observations have been included. One of the most important pieces of information developed by the Survey is the fact that there are several structures still remaining from the earliest years of the city's existence. Most of these buildings have been much altered, even surrounded by newer construction, but several still reflect the early image of the city. An original commercial building, Seaman's Opera House, still stands at 11 Main Street, and retains enough of its initial character to provide some aura of Winters' first "boom town" days.

These earliest structures are vernacular, almost styleless buildings, constructed for utility by the settler/ranchers of the area. They sometimes bear a simple classical form derived from Greek Revival style prototypes.

At the time of Winters' establishment, a number of buildings were reputedly moved there from the nearby town of Buckeye, bypassed by the railroad and therefore defunct. These houses served either as individual dwellings in their new locations, or were combined with new or existing construction to expand existing living space.

There are still, no doubt, several buildings that survived the move from Buckeye and still stand in Winters. Although documentation to date of such buildings has been limited, further research is expected to bring additional survivors to light.

While early-day Winters held a number of simple vernacular buildings, there were also some decorative, ornate representatives of the 1870s and 1880s. The Bell House, for instance, with its Gothic Revival design and Italianate porch, is a decorative work, and stylistically unique to Winters. Italianate styles came to Winters in the 1880s, with a small number of representatives, the most ornamental example being the Venable Morris House on East Baker. There were also some competent and handsome downtown

buildings, reflecting a certain prosperity and promise for the future. The DeVilbiss Hotel, constructed in 1889, was an elegant and grand Italianate addition to the Main Street of the small rural town.

Buildings of simpler vernacular design continued to be constructed during this era, with a very limited deference generally to styles popular elsewhere. A few bear Eastlake and Stick Style ornament, reflecting the popularity of those modes and their combination during this era.

In the 1890s, examples of the Queen Anne style, with its highly decorated woodworking, bracketing, and gable ornament appeared in Winters. The style was primarily represented in small "cottages" or larger commercial structures like the somewhat later Bank Building. This year appeared to have been one of some growth in Winters, there being a number of buildings constructed at that time, and in the "latest fashion."

The turn of the century brought yet a new architectural look to Winters. The first two decades of the new century saw a great attention to public improvements, and a growth of civic pride. New buildings on Main Street were constructed, and old ones remodeled. The City Hall and Christian Church were built. Stylistically, buildings reflected Classical and Colonial Revival styles popular during this era. Some buildings bridged the two centuries with a nod to both, such as the Wyatt House. Others solidly embraced the future, such as the Classically derived City Hall, and the only Mission Revival representative in the city, the Christian Church -- both designed by the prolific northern California architect William Weeks. More modest variations of Colonial and Classical Revival styles were reflected in a number of residences, indicating an era of modest but steady growth and prosperity.

The civic awareness of this era extended to early beautification efforts on the part of citizens. For example, D. O. Judy was responsible for the first planting of a number of trees in the downtown area. One of these, planted in 1902, remains at Railroad Avenue and Main Street.

Two new bridges were constructed during the first decade, further expanding Winters' access to the rest of the Valley, and contributing to its growth. The concrete automobile bridge in particular facilitated traffic interchange and encouraged the 1920s establishment of the Standard Oil distribution center on the Solano County side of Putah Creek.

The prosperity so widely evident in the town was generated by its agricultural base and the growing success of that industry.

Residential styles of the era included variations of the Colonial Revival style and late Queen Anne adaptations. The Craftsman style began to emerge in Winters at the beginning of the second decade. There are several attractive representatives in the city, probably the most sophisticated work being the residence at 308 Main Street. The Craftsman styles heralded a return to rustic, natural materials and themes, reflecting a national movement away from the "fussier" Victorian era and back to nature.

A general observation regarding styles in Winters is the continued utilization of styles past the era of their greatest popularity, and the late initiation of some modes already prevalent in more urban areas.

The prosperity of this era is further reflected in the appearance of architect-designed buildings in Winters. During the first decades of the city's existence, a tradition of competent builders and craftsmen had evolved in Winters.

With the advent of a "new" Winters, its civic awareness and economic prosperity, some town members wished to underline their growing sophistication by the use of architects to design their buildings.

A. A. Cook of Sacramento was the best known of the earlier architects. He was a major architect of his era, having designed a number of both small and large commercial buildings in Sacramento and the region, including Folsom Prison at Folsom. His Winters representative, the famed DeVilbiss hotel, was designed in 1889, and reflected the beginnings of the agribusiness boom that blossomed after the turn of the century.

Twentieth century architectural designs in Winters were the work of such architects as Frank Schardin of Sacramento, a former associate of Nathaniel Goodell, architect of the Governor's Mansion.

There are two works of William H. Weeks, a noted and most prolific Northern California architect. Weeks was particularly renowned for his school and public building designs. One of his favorite stylistic metaphors was the Mission Revival mode. Winters possessed one of this competent works in this style. He also utilized Classical themes in his public buildings, and Winters' example of his design in this favored style is the City Hall.

Other architects of this general era included Kenyon, Slocombe, and Tuttle.

The building tradition was reflected both in stone and in wood. Representatives of master stone mason Benoit Bertholet's fine craftsmanship are still evident in the Bertholet Building and the stone house on Main Street.

Local builders of note in the wood tradition for the late 19th and early 20th centuries include the following:

Charles Hall
Joe Lamme
J. D. Little
Arch Gale
Edwin Markwich
Alex Ritchie
Harold Ritchie and Ray Murray
Art Gale

As the century rolled ahead, major reflections of the wealth that grew with the agricultural industry seemed to occur elsewhere than in Winters. The small town stabilized, but evidences of wealth derived from its industries were not reflected in any considerable physical growth or individual architectural works. The downtown blocks gained a few additions and remodeling, but the Period Revival buildings so numerous in other areas at this time are largely absent in Winters.

Most of the Main Street structures have now been remodeled, some so completely that they appear to be modern buildings. Only in the alleys on either side of Main are the original ages and configurations of these buildings evident.

Most of the residences in the city have experienced additions, alterations, or both. In some instances, it appears that complete but small buildings have been attached to existing structures. While this has in some cases diminished the visual character of the building, the practice does reflect the common activity in smaller communities of utilizing an existing functional building to the maximum – and simply adding to it to gain more space rather than moving to the suburbs. This practice, however, if not conducted with some sensitivity, could diminish not only the original character of individual houses, but that of the city as well.

Areas of town only partially reflect their era of development. Town residences appear to be rather evenly scattered stylistically within the original grid. Concentrations of early structures near the early core of town exist, but are rather limited. While older structures do occur more often in the blocks near Railroad Avenue and Main Street, there are buildings of varied ages and styles throughout the city.

Some of the principal houses of early ranches surrounding the original core of the city have now been incorporated into city neighborhoods as a result of the outward expansion of the city, but early settlement patterns were centered generally around the downtown area. Commercial activity was confined almost completely to the downtown Main Street and Railroad Avenue blocks, particularly the block between Railroad Avenue and First Street on Main.

As early as 1875, the blocks east of Railroad Avenue, including the railroad tracks, became designated as the industrial section of the new town. The Buckeye Grangers Warehouse Association built the first warehouse on the north edge of this section in 1875, followed by a second warehouse in 1876. The Hill Brothers also built a grain warehouse shortly after. The F. B. Chandler Lumber Company situated between Baker and Edwards Streets was another of the first businesses in this section. After extension of the railroad to Madison, many of the grain tonnage shipments were moved to that location. Winters then began to concentrate on the shipment of fruit and produce. The Earl Fruit Company and the California Fruit Association Shed were two of the earliest fruit shippers, followed by the Sackett Brothers, Porter Brothers, Producers Fruit company, and the California Fruit Exchange. In the early days, much of the fruit packing was done on the ranches and the fruit then trucked to town. Loading platforms were located up and down the tracks to facilitate loading of the rail cars.

The Winters Dried Fruit Company, initiated and incorporated in 1897, was located west of the Chandler Lumber Company on Baker Street. Later it was expanded to include the property of the Winters Canning Company which had been organized in organized in 1905 and occupied the block between Baker and Edwards Streets.

There has been a change in the crops in Winters, with walnuts and almonds replacing many of the fruit orchards. The former California Fruit Exchange buildings on East Main Street are now privately owned and house a number of local businesses. One is now the Wool Wherehouse, where raw wool is washed, carded, and shipped. The Valley Farmers CO-OP and the Holmes Wherehouse still handle agricultural products, but all of the fresh and dried fruit is now packed in the rural areas.

The passenger and freight depot was located east of Railroad Avenue between Edwards and Abbey Streets until it was razed in 1967. Rail service to Winters ceased in 1974. The south portion of this section near Putah Creek was the site of a Chinatown to serve the Chinese who worked on the ranches. This was later taken over by the Japanese, who gradually replaced the Chinese population in and around Winters. It contained the Horai Grocery Store, a Buddhist church, living quarters and restaurants. These buildings were razed in 1948. The railroad company moved in some discarded railcars outfitted as living quarters for employees, two of which still stand. The remaining area south of Main Street and adjacent to the Railroad Bridge was sold by the Southern Pacific Railroad to the City of Winters, and is the site of the new Winters Community Center.

HISTORICAL SITES AND BUILDINGS

The city of Winters contains numerous historically and architecturally significant buildings. In 1983 the City commissioned an inventory of historical and architecturally significant buildings and features in the Winters area, the results of which are contained in the Winters Cultural Resources Inventory Project Report. The Historic Resources Inventory surveyed 79 structures. 14 of these are potentially eligible for inclusion in the National Register of Historic Places. Table VII-1 lists the inventoried sites, and Figure VII-1 shows the location of these sites.

In 1985 the City adopted *Ordinance 85-03*, which created a Historical Preservation Commission and established procedures for designating and protecting historical landmarks and districts. This ordinance established only one small historical district (District One), which encompasses the one-block -area along Main Street between Railroad Avenue and First Street and City Hall at 318 First Street. The ordinance's regulations currently (1992) restrict changes to building only within this historical district. The State Historic Building Code has been adopted for use within the designated Historic District. The Planning Commission has been designated to serve as the Historical Preservation Commission.

TABLE VII-1

INVENTORY OF HISTORICAL SITES AND BUILDINGS

Abbey Street
106
208
215
302
411

East Abbey
29

Baker
105
209

East Baker
15
25 *

Dutton
710

Edwards
8
15
106
107
115

Grant
213

East Grant
101

Hemmenway
717
720

Westwood Ct.
127 *

First
101
208
318 *
412

Second
310
311
317

Fourth
418
Railroad Truss
Bridge

Yolo-Solano
County Bridge*

Winters Cemetery

Main Street
2-10 **
3-5-7 **
11 **
15 **
16 **
17-23 **
26 **
30 **
35 **
37 **
41 **
47 **
48 **
110
112
116 *
201 *
206
209
213
300
305
308
451

East Main
11 *
13
20 *
21
31

Northeast
808

Railroad
416
722
822

Road 33
(Near Madison
Hwy)

Russell
2
8
11
12
101
107
120 *
123
129 *
202 *
206 *
210 *
211
403

* Structures determined potentially eligible for listing on the National Register of Historical Places.
** Structures within a Historic District determined potentially eligible for listing on the National Register of Historic Places.

Source: *Winters Cultural Resources Inventory Project Report*, June 1983.

ARCHEOLOGICAL RESOURCES

The Northwest Information Center of the California Archeological Inventory completed a records search of the Winters area in January 1991. The records search indicates that the Winters area contains three recorded prehistoric archeological sites listed with the California Archeological Inventory.

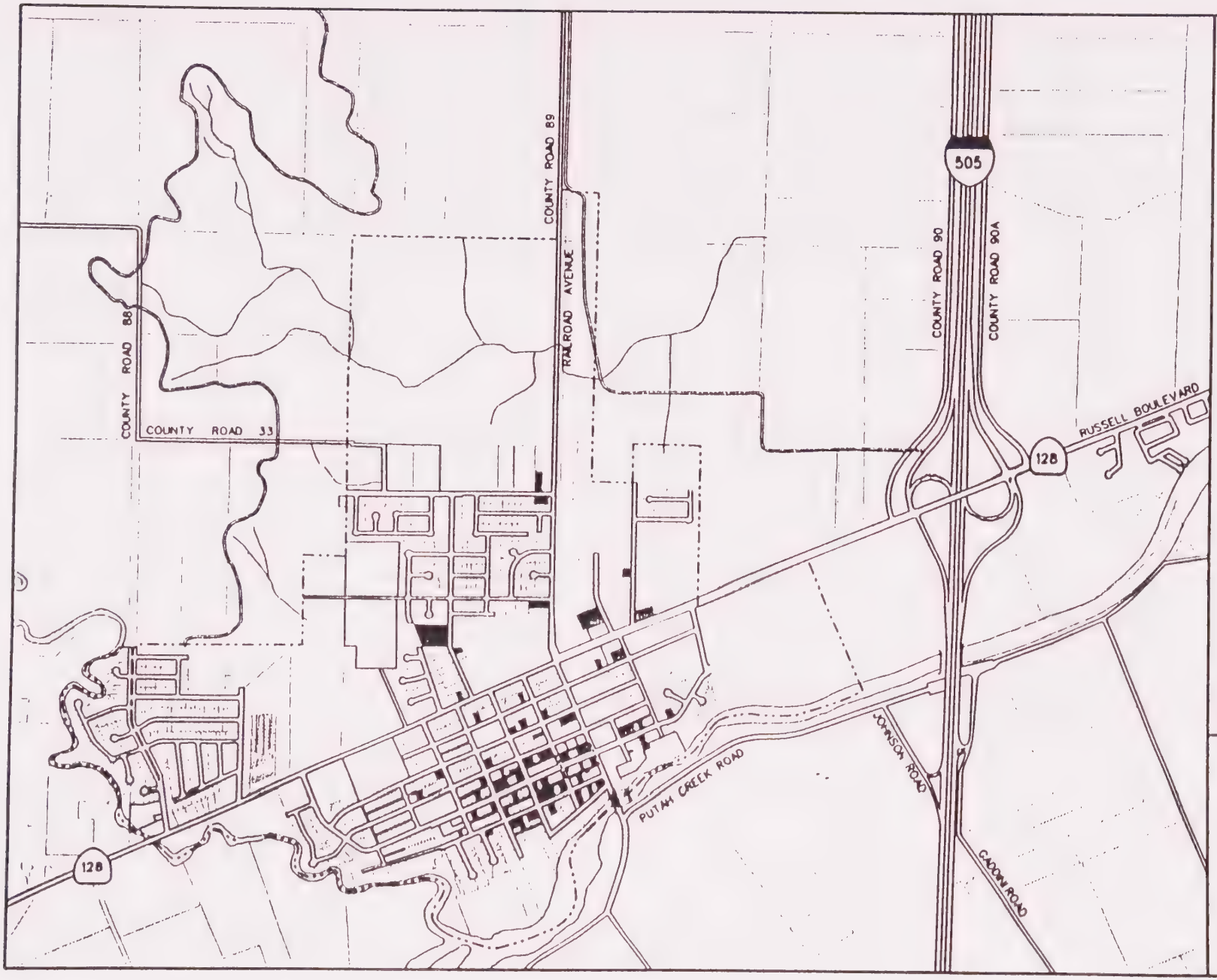

FIGURE VII-1

INVENTORIED HISTORICAL SITES AND BUILDINGS AND HISTORIC DISTRICT

See Table VII-1

Historic District One

Source: City of Winters, 1985

CITY OF WINTERS

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0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

Prehistoric archeological sites are generally situated along watercourses. The ethnographic village of "Liwai" was reported near the present-day location of Winters, and three prehistoric sites (consisting of chert and basalt flakes and cores) have been recorded in the area. Inasmuch as less than 5 percent of the Winters area has been archaeologically surveyed, there is a possibility of other similar sites in the Winters area which may contain additional artifacts, such as projectile points, mortars and pestles, dark friable soil containing shell and bone, dietary debris, heat-affected rock, and human burials.

The Northwest Information Center recommends that, due to the possibility of additional prehistoric resources in the area, additional field study should be conducted in conjunction with specific sites planning and prior to development.

GLOSSARY

Historic; Historical

An historic building or site is one that is noteworthy for its significance in local, state, or national history or culture, its architecture or design, or its works of art, memorabilia, or artifacts.

Historic Preservation

The preservation of historically significant structures and neighborhoods until such time as, and in order to facilitate, restoration and rehabilitation of the building(s) to a former condition.

Landmark

Refers to a building, site, object, structure, or significant tree, having historical, architectural, social, or cultural significance and marked for preservation by the local, state, or federal government.

National Historic Preservation Act

A 1966 federal law that established a National Register of Historic Places and the Advisory Council on Historic Preservation, and that authorized grants-in-aid for preserving historic properties.

National Register of Historic Places

The official list, established by the National Historic Preservation Act, of sites, districts, buildings, structures, and objects significant in the nation's history or whose artistic or architectural value is unique.

Recreation, Passive

Type of recreation or activity that does not require the use of organized play areas.

PERSONS CONSULTED

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Valenzuela, Glenn, Community Development Director

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CHAPTER VIII

NATURAL RESOURCES

INTRODUCTION

The water, agricultural lands, soils, vegetation and wildlife, air quality, and mineral resources in and around Winters contribute to the city's economy and are key elements in the quality of life of Winters residents. This chapter inventories and assesses the area's major natural resources, including water, agricultural soils, vegetation and wildlife, air, and mineral resources.

WATER RESOURCES

The quantity, quality, and availability of water are vital to both natural processes and human activities in and around an urban area. Water is essential to the development of housing, commerce, industry, agriculture, to recreation, and to the maintenance of high-quality aquatic and terrestrial resources.

Precipitation

The climate of the Sacramento Valley is characterized by hot summers and cool, rainy winters. During the summer months the Sacramento air basin is influenced by a high-pressure cell off the coast. Within this cell, air descends almost continuously; the descending air is compressed, thereby raising its temperature and lowering the relative humidity. When this cell is dormant, there are no major storms or regionwide precipitation. During the winter the influence of this high-pressure cell is intermittent, resulting in alternating periods of stormy, unsettled weather and stable, rainless conditions. Intermittent periods of fog also occur during these months.

Weather records gathered by the U.S. Department of Commerce Oceanic and Atmospheric Administration over the 29 year period from 1951-1980 indicate a mean low and high temperature range at Winters from 48° to 76° Fahrenheit with an extreme low of 20° in December 1978 and an extreme high of 115° in July 1972. Mean annual rainfall is 20.63 inches. Data compiled by the U.S. Department of Agriculture Soil Conservation Service indicates that there are from 265-280 frost free days per year.

Annual rainfall in Yolo County averages 16 to 30 inches. Annual rainfall in Winters is approximately 20 inches. Rainfall in amounts over one-half inch per month falls between November and April with approximately 50 percent of the annual total occurring during December and January. Weather is influenced by fog from San Francisco Bay and localized effects of air drainage. A common westerly wind pattern during most of the year results in wind from the south paralleling the flanks of the Vaca Mountains. During winter months a more northerly wind pattern occurs resulting in air movement in a southerly direction parallel to the foothills. Mean wind speeds recorded at Travis Air Force Base in Fairfield, about 15 miles south of Winters, rarely exceeds 15 miles per hour. The windiest time of year is shown to be June, although extremes of up to 70 miles per hour have been recorded in all 12 months.

Watercourses

Two natural watercourses, Putah Creek and Dry Creek, are located on the south and southwestern boundaries of the city. Other watercourses in the vicinity of the city are Moody Slough and Willow Canal.

Putah Creek, which contains water year-round, forms a portion of the southern boundary of the city and is the principal watercourse in the area. Water levels are controlled by release from Lake Berryessa, at Monticello Dam.

Dry Creek, a tributary of Putah Creek, is an intermittent stream which contains water only following extended rainy periods. It is dry most of the year and forms a portion of the southern and western boundaries of the city. Both creeks are recognized as biotic assets to the city and have been the subject of extensive study and discussion relative to means of preservation. (See Vegetation and Wildlife Resources, contained in this chapter. Also refer to Chapter IX for additional information concerning watercourses and flooding potential.)

Wetlands

Although definitions vary to some degree, wetlands are generally considered to be areas that are periodically or permanently inundated by surface or ground water, and support vegetation adapted for life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and flood waters and water recharge, filtration and purification functions. In addition to the Putah and Dry Creek corridors, other potential wetlands in the Winters area include Moody Slough, irrigation ditches, and a large depression northwestern of the cemetery which is subject to short periods of ponding after heavy rains and seasonal flooding in wetter winters. It is possible that more detailed analysis would indicate additional wetland features, depending on the classification system used for delineation.

Groundwater Supply and Quality

The Tehema Formation is the principal water-bearing formation on the west side of the Sacramento Valley due to its widespread distribution and thickness. Depth to groundwater within this formation ranges from several feet in the central portion of the Sacramento Valley to over 100 feet near the western edge.

Groundwater levels have generally been decreasing in many Sacramento Valley areas since the 1940s. In the Winters area, groundwater levels have remained fairly constant for most of the past 30 years, although groundwater levels dropped in 1990 due to the drought. Groundwater in the Winters area is located approximately between 80 and 100 feet below the surface. The regional groundwater flow is toward the southeast.

Groundwater levels fluctuate seasonally, with the highest levels occurring in spring and the lowest in fall, following summer agricultural irrigation pumping.

Putah Creek is a major source of groundwater recharge. Prior to the construction of Monticello Dam the city maintained a dam on Putah Creek which provided for both extensive groundwater recharge and recreation. The dam was destroyed by flooding prior to construction of Monticello Dam. The most recent (1978) analysis by the California Department of Water Resources of groundwater in the Winters area revealed 4,300 acre-feet from 20 to 100 feet below the ground surface and a total of 48,900 acre-feet of groundwater storage to a depth of 600 feet. The fresh groundwater basin below the Winters area extends to a depth of approximately 2,000 feet.

The city of Winters relies on ground waster for its domestic water supply, and operates five wells each of which are designed to deliver 1,500 gallons per minute.

In addition to access to the aquifer beneath the Winters area, the City has Putah Creek underflow rights (rights to water which flows in an aquifer beneath Putah Creek) of 673 gallons per minute. City water rights do not include direct use of Putah creek. The U.S. Bureau of Reclamation has rights to all Putah Creek surface flows. Access to groundwater (except Putah Creek underflow) is unrestricted, and there is

no evidence of overdraft occurring at this time. Additional information concerning the municipal water supply is contained in Chapter VI, Public Facilities and Services.

The City of Winters monitors the quality of domestic water on a regular basis. Tests are performed to determine the presence of any of several potentially harmful substances for which standards are set by the California Department of Health Services. The results of City testing are made available to the public in an Annual Water Quality Report. As indicated in the latest Annual Water Quality Report, the City water supply is well-below contaminant levels established by the State.

Although relatively hard, water quality has remained roughly constant for the past 60 years; however, nitrate levels have been somewhat higher in 1990 than historic levels. Table VIII-1 describes groundwater quality in 1970 and 1990.

TABLE VIII-1

GROUNDWATER QUALITY
(Milligrams Per Liter)

	Standard	1990 (City Well)	1970 (Intermediate Depth)
Nitrate	45	18	10.5
TDS	500	552	374
Chloride	250	22	16

Source: Draft Groundwater Study, CH2M Hill, April 1991.

Solid Waste Assessment Test

The Winters Landfill located northeast of the city limits operated from 1929 until 1979 and received a variety of residential, industrial, and agricultural wastes. In spite of its official closure, from 1979 until recently the dump was used by the City as a disposal site for landscape refuse (tree trimmings, etc.). In addition, certain unauthorized dumping was discovered.

As a result of concern for possible groundwater contamination, a Solid Waste Assessment Test (SWAT) was ordered and performed in 1989 for the purpose of evaluating the soils and groundwater in the vicinity of the landfill, determining whether contamination had occurred, and establishing a groundwater monitoring program.

While the SWAT revealed very little in the way of groundwater contamination, county and state regulatory agencies have recently advised the City of the need to obtain a closure permit. The City will be applying for such a permit under pre-1989 standards, given the fact that public use of the landfill officially ended in 1979.

The landfill is no longer used for disposal of landscape refuse, and has been locked to prevent unauthorized access.

AGRICULTURAL SOILS AND RESOURCES

Agriculture, particularly tree crop production has been and continues to be an important industry in the Winters area. As described in this section, much of the land in and around the Winters area is well-suited for crop production.

Land Capability Classification

The Soil Conservation Service (SCS) has developed a rating system for soils called the land capability classification (LCC) system. The LCC system rates a soil according to its limitation for growing crops, potential risk of soil damage if it is cultivated, and management requirements. This rating does not take in to account landforming or reclamation that could improve a soil's capability. Specifically, the LCC system groups soils into categories I through VIII. Classes I through IV are arable (suited to cultivation) and Classes V through VIII are considered non-arable. The LCC classification system ratings are depicted in Figure VIII-1.

In 1980, the California Department of Conservation, Division of Land Resource Protection, began work to supplement the SCS conservation programs. Specifically, the Department began a Farmland Mapping Monitoring Program in 1982. This program was designed to inventory important farm and grazing lands by preparing a series of Important Farmland Series maps. Its purpose is to monitor conversion of the state's agricultural land to and from agricultural use, and to report such conversion to the Legislature, local governments, and the public.

The important farmland inventory (IFI) guidelines identify five categories of farmlands: Prime Farmlands, Farmlands of Statewide Importance, Unique Farmlands, Farmlands of Local Importance, and Grazing Lands. The Department of Conservation defines these five categories as follows:

- Prime Farmland is land which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture supply needed to reduce sustained yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops within the last three years. It does not include publicly-owned lands for which there is an adopted policy preventing agricultural use.

- Farmland of Statewide Importance is land other than Prime Farmland which has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops within the last three years. It does not include publicly-owned lands for which there is an adopted policy preventing agricultural use.

- Unique Farmland is land which does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, that is currently used for the production of specific high economic value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. Examples of such crops include oranges, olives, avocados, rice, grapes, and cut flowers. It does not include publicly-owned lands for which there is an adopted policy preventing agricultural use.

- Farmland of Local Importance is either currently producing crops, or has the capability of production. Farmland of Local Importance is land other than Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. This land may be important to the local economy

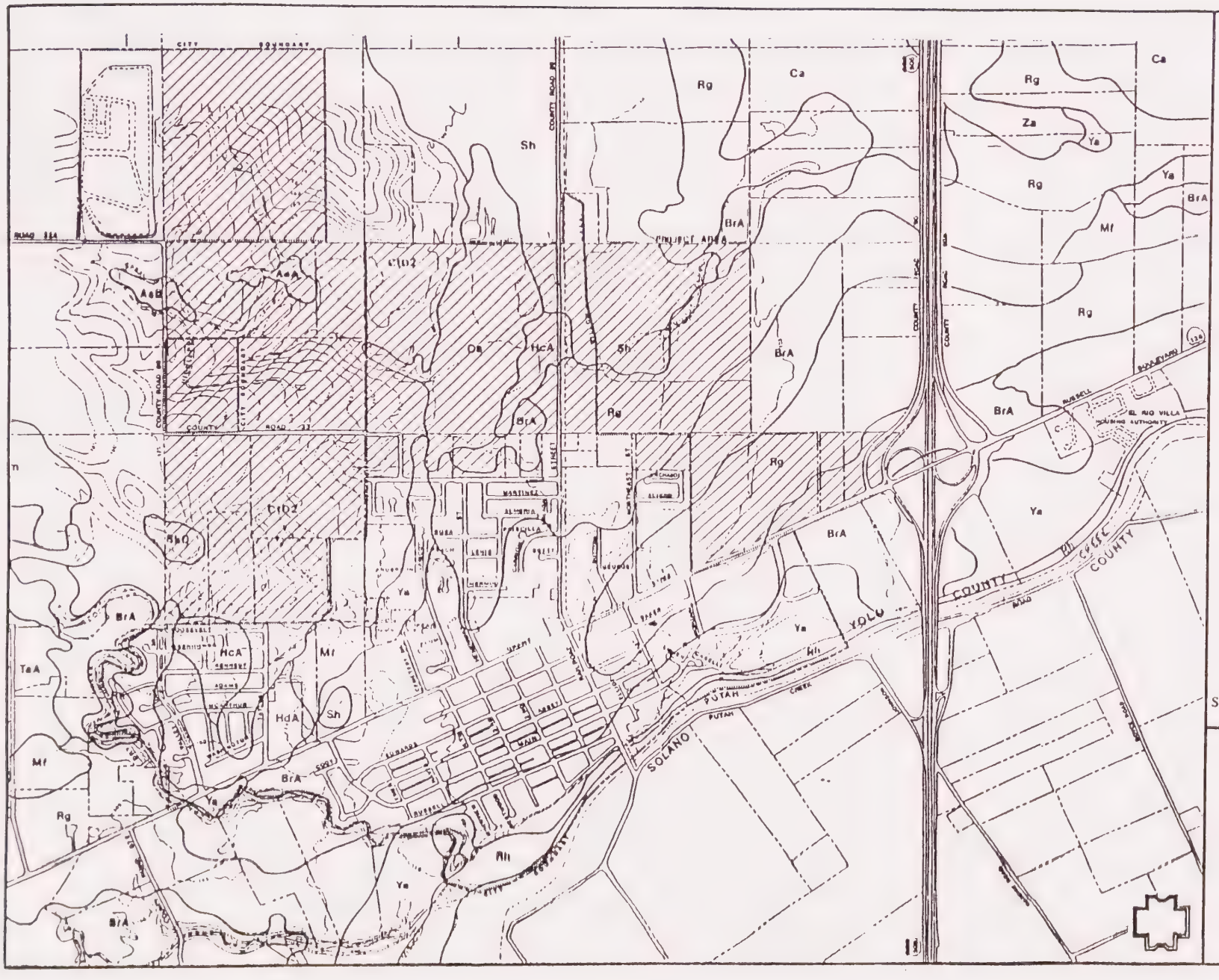

FIGURE VIII-1

AGRICULTURAL SOILS MAP

AeA	ARBUCKLE GRAVELLY LOAM (CLASS II)
AeB	ARBUCKLE GRAVELLY LOAM (CLASS II)
BrA	BRENTWOOD SILTY CLAY (CLASS I)
Ca	CAPAY SILTY CLAY (CLASS I)
ClD2	CORNING GRAVELLY LOAM (CLASS IV)
HcA	HILLGATE LOAM (CLASS IV)
Rg	RINCON SILTY CLAY LOAM (CLASS II)
Sh	SAN YSIDRO LOAM (CLASS IV)
SkD	SEHORN COBBLY CLAY (CLASS IV)

Source: North Area Specific Plan, December 1988

CITY OF WINTERS

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0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

due to its productivity. It does not include publicly-owned lands for which there is an adopted policy preventing agricultural use.

- Grazing Land is defined in *California Government Code §65570(b)(2)* as "... land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock." The minimum mapping unit for Grazing Land is 40 acres.

Figure VIII-2 describes land in the Winters area in accordance with this system. Generally, lands with land classification of I or II are designated Prime Farmland in the IFI system. As shown in Figure VIII-2, the majority of the undeveloped land in the northern and eastern portions of the Planning area is considered Prime agricultural land, while lands to the northwest have less suitability for agricultural use.

From an agricultural standpoint the Class I soils are suitable for growing a greater variety of crops with higher yield per acre than are Class II soils. In the Winters area, the Class I and II soils are used for growing almonds, apricots, walnuts, alfalfa, irrigated row crops, dry farmed grain, and for pasture land. Principal crops grown in the area are identified in Figure VIII-3.

Williamson Act Contracts

The *California Land Conservation Act (Williamson Act)* encourages conservation of agricultural lands. The act allows cities and counties to create agricultural preserves and offer tax incentives to farmers who agree not to develop their agricultural lands. A contract, signed by a property owner, indicates that contracted land will not be developed for a 10-year period. The tax assessment on the contracted land is based on its agricultural use value rather than on market value. Each year the contract is automatically renewed for an additional 10-year period unless a termination is requested.

A *Williamson Act* contract may be terminated in two ways: the landowner or local jurisdiction may file a notice of nonrenewal, or the landowner may submit a request for cancellation to the local jurisdiction. A notice of nonrenewal results in nine years of incremental increases in tax base assessment, culminating in assessment based on the market value of the land. During this phase-out period, the land must remain undeveloped. At the end of the nine-year period, the contract binding the land is terminated and the land can be developed.

A request for cancellation must be approved by the County. Approval is subject to strict findings that cancellation is in the public interest and/or will not result in the disruption of future development patterns. If the request is approved, the land in question is immediately released from contract and can be developed for uses other than agriculture.

In Yolo County, there are no lands in the immediate Winters area under a *Williamson Act* contract. However, the majority of the agricultural land in Solano County, contiguous with the city limits and immediately south of Putah Creek, is subject to the *Williamson Act*.

VEGETATION AND WILDLIFE RESOURCES

Vegetation

Historically, the natural vegetation pattern in the Winters area consisted of native valley grasslands with scattered oaks and brush along the drainage ways and foothills to the west. Extensive riparian forest, woodland and scrub existed along Putah and Dry Creeks. The current patterns of vegetation in and surrounding the city of Winters are predominantly man-made, due to clearing, cultivation and settlement.

Land beyond the urbanized part of Winters currently consists of scattered homesites, cultivated cropland, orchards, pasture, vacant land and limited urban uses. Hay, grain and row crops (e.g., alfalfa, wheat, tomatoes) dominate the area. Orchards, planted primarily with walnut trees, are more dominant to the south and west of Winters. Common plant species found in the area include alfalfa, rye grass, barley, wild oats, wheat, Johnson grass, blackberry, burr clover, sweet clover, turkey mullein, watergrass, alfilaria, lana vetch, lupine, yellow mustard, buttercup, California poppy, valley live oak, and eucalyptus.

There has been less human influence on the strips of land immediately adjacent to Putah Creek, Dry Creek and a few steeper slopes northwest of Winters. Riparian forest and wetland habitats are found along Putah Creek. Willow thickets and short lived herbs are formed along the creek and low lying gravel and silt bars. Cattails, tules and sedges are found in freshwater marshes created by beaver dams or other obstructions. Dense, diverse mixed riparian forest occupies the terrace above the riverbed, and is dominated by cottonwood and willow, with black walnut, ash, box elder, alder, sycamore and buckeye also common. In open canopy areas an herbaceous understory of wild grape, wild rose, elderberry, poison oak, Baccharis and shrubby willow species may be present. Higher undisturbed terraces are vegetated with valley oak woodland, with an elderberry understory and ground cover of non-native annual grasses.

Dry banks and disturbed areas along Putah Creek are either vegetated with shrubs, including elderberry, poison oak and coyote bush; rows of exotic eucalyptus; or riparian exotics including black locust, tamarisk, giant reed, tree of heaven and tree tobacco.

Riparian habitat along the lower reaches of Dry Creek is less extensive, due to its intermittent flow and the encroachment of adjacent agricultural and residential development. The east bank within the city limits is nearly completely developed with old neighborhoods and new subdivisions. A line of valley oaks and cottonwoods is still present along the west bank, beyond which lie walnut orchards and cultivated fields. Black walnut and willows are also well represented. The Dry Creek channel is deeply incised and the banks (canyon walls) are free of vegetation due to erosion during storm flood flows. Efforts have been made to stabilize the banks in this reach, including encroachment and rip rap installation at two new housing subdivisions.

Natural drainage channels, such as Moody Slough, and irrigation ditches provide a source of water for wildlife and limited potential wetland habitat. A depressed area northwest of the cemetery is subject to short periods of ponding after heavy rains and seasonal flooding in wetter winters.

Wildlife

Wildlife in the Winters area is typical of a small community surrounded by agricultural lands. Common wildlife species include harvest mouse, gopher, ground squirrel, jackrabbit, coyote, turkey vulture, hawk, quail, pheasant, dove, barn owl, crow, scrubjay, robin, meadowlark, blackbird, and sparrow. Ponding on soils with higher clay content after rains may attract ducks and geese during winter months. Reptiles common to the agricultural areas include gopher snake, king snake, racer, and fence lizard. Irrigation ditches and drainage sloughs provide a source of water and some limited wetland habitat. The riparian forest and wetlands along Putah Creek provide the most important wildlife habitat in the Winters area due to the density and diversity of the flora, fairly undisturbed conditions, and perennial waters. This riparian corridor provides forage, cover, and breeding habitat, and migratory corridor for a wide variety of mammals, water birds, raptors, and passerine birds, as indicated in the potential species lists (Table VIII-2). Beaver actively use Putah Creek in the Winters area, as evidenced by dams, and girdled trees.

FIGURE VIII-2

IMPORTANT FARMLANDS MAP

Prime Farmlands
Lands with the best combination of physical and chemical features for the production of agricultural crops

Unique Farmlands
Lands of lesser quality soils used for the State's leading agricultural cash crops

Farmlands of Local Importance
Lands of importance to the local agricultural economy, as determined by each county's board of supervisors

Source: An Assessment of General Plan Alternatives, Duncan and Jones, October 1990

CITY OF WINTERS

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0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

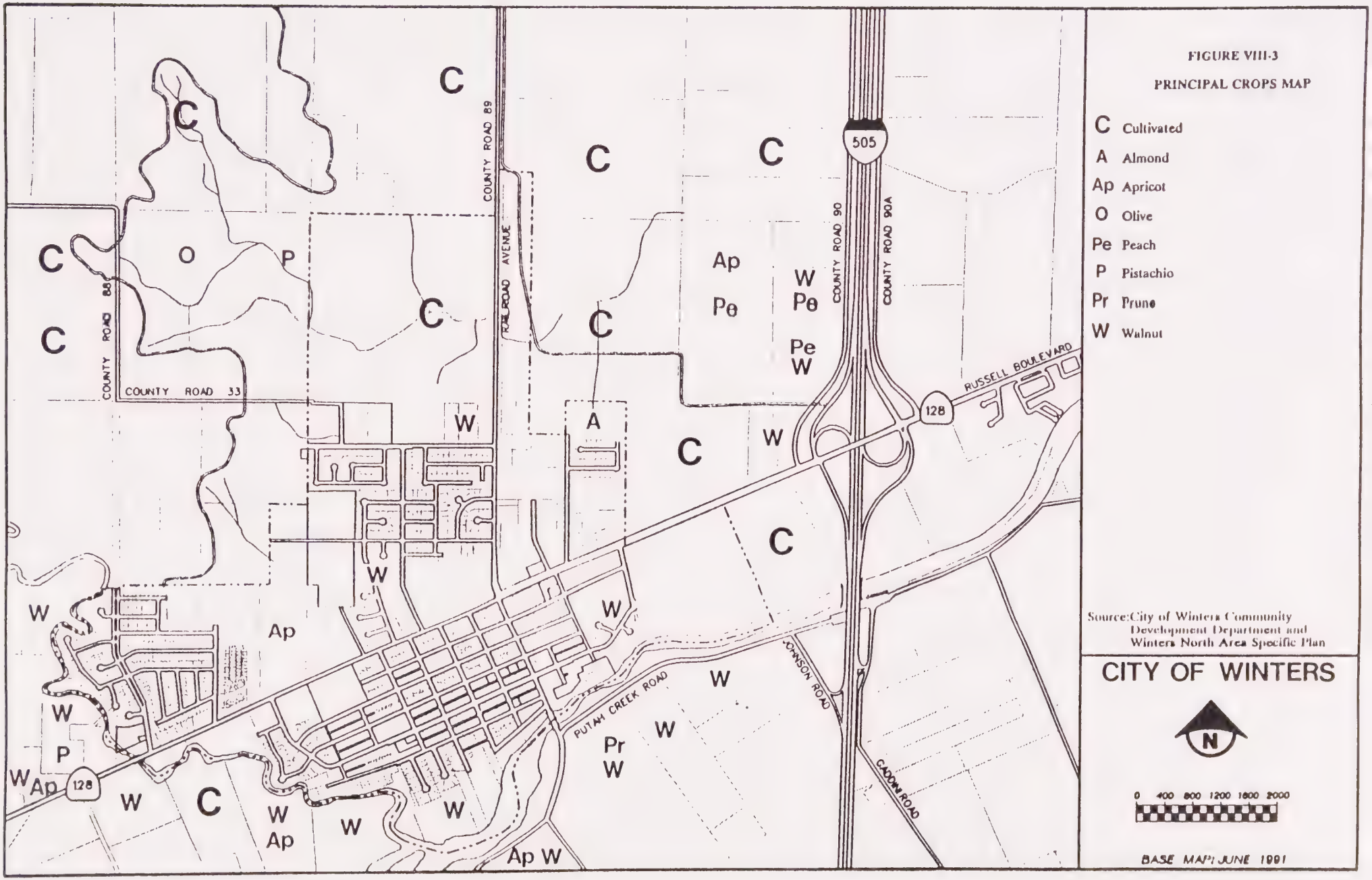


FIGURE VIII-3
PRINCIPAL CROPS MAP
C Cultivated
A Almond
Ap Apricot
O Olive
Pe Peach
P Pistachio
Pr Prune
W Walnut
Source: City of Winters Community Development Department and Winters North Area Specific Plan
CITY OF WINTERS
N
0 400 800 1200 1600 2000
BASE MAP: JUNE 1991
COUNTY ROAD 89
COUNTY ROAD 88
COUNTY ROAD 90
COUNTY ROAD 90A
COUNTY ROAD 33
POLE ROAD AVENUE
RUSSELL BOULEVARD
PUTAH CREEK ROAD
JOHNSON ROAD
CADDY ROAD
505
128

Putah Creek is a perennial stream which supports a variety of fish, aquatic insects and plants. In the Winters area it supports a warm water fishery, with species such as large and small mouthed bass, bluegill, catfish and Sacramento blackfish (see Table VIII-2).

Special Status Wildlife and Plant Species

A number of plants and animals with special status have geographic ranges which encompass the Winters area or have been observed in the Winters area according to occurrence records maintained by the Natural Diversity Data Base of the California Department of Fish and Game (CDFG). Special-status species include: officially designated (rare, threatened, or endangered) and candidate species for listing by the California Department of Fish and Game; officially designated (threatened or endangered) and candidate species for listing by the U.S. Fish and Wildlife Service (USFWS); species considered to be rare or endangered under the conditions of *Section 15380* of the *State CEQA Guidelines*, such as those identified on lists 1A, 1B, and 2 in the *Inventory of Rare and Endangered Vascular Plants of California*, and other species which are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on list 3 and 4 in the *California Native Plan Society Inventory* or identified as "Species of Special Concern" by the California Department of Fish and Game. Information on species reported or suspected to occur in the Winters area is summarized below.

TABLE VIII-2

WILDLIFE SPECIES POTENTIALLY OCCURRING AT PUTAH CREEK NEAR WINTERS

COMMON NAME	SCIENTIFIC NAME
Birds	
Double-crested cormorant	*Phalacrocorax auritus*
Green-backed heron	*Butorides striatus*
Black crowned night heron	*Nycticorax nycticorax*
Great blue heron	*Ardea herodias*
Wood duck	*Aix sponsa*
Green-winged teal	*Anas crecca*
Mallard	*Anas platyrhynchos*
Northern pintail	*Anas acuta*
Cinammon teal	*Anas cyanoptera*
Gadwall	*Anas strepera*
American wigeon	*Anas americana*
Common goldeneye	*Bucephela clangula*
Bufflehead	*Bucephela albeola*
Hooded merganser	*Lophodytes cucullatus*
Common merganser	*Mergus merganser*
Red-breasted merganser	*Mergus serrator*
Black shouldered kite	*Elanus caeruleus*
Sharp-skinned hawk	*Accipiter striatus*
Cooper's hawk	*Accipiter cooperii*
Red-shouldered hawk	*Buteo lineatus*
Swainson's hawk	*Buteo swainsoni*
Red-tailed hawk	*Buteo jamaicensis*
American kestrel	*Falco sparverius*
California quail	*Callipepla californica*
Ring-necked pheasant	*Phasianus colchicus*
Killdeer	*Charadrius vociferus*
Coot	*Fulica americana*
Virginia rail	*Rallus limicola*
Sora rail	*Porzana carolina*
Rock dove	*Columbia livia*
Mouring dove	*Zenaida macroura*
Common barn own	*Tyto alba*
Great horned owl	*Bubo virginianus*
Long-eared owl	*Asio otus*
Anna's hummingbird	*Calypte anna*
Black-chinned hummingbird	*Archilochus alexandri*

Continued

TABLE VIII-2 (Continued)

WILDLIFE SPECIES POTENTIALLY OCCURRING AT PUTAH CREEK NEAR WINTERS

COMMON NAME	SCIENTIFIC NAME
Belted kingfisher	*Ceryle alcyon*
Acorn woodpecker	*Melanerpes formicivorous*
Yellow-bellied sapsucker	*Sphyrapicus varius*
Nuttall's woodpecker	*Picoides nuttallii*
Downy woodpecker	*Picoides pubescens*
Hairy woodpecker	*Picoides villosus*
Northern flicker	*Colaptes auratus*
Western wood pewee	*Contopus sordidulus*
Black phoebe	*Sayornis nigricans*
Western kingbird	*Tyrannus verticalis*
Violet green swallow	*Tachycineta thalassina*
Cliff swallow	*Hirundo pyrrhonota*
Barn swallow	*Hirundo rustica*
Scrub jay	*Aphelocoma coerulescens*
Yellow-billed magpie	*Pica nuttalli*
American crow	*Corvus brachyrhynchos*
Plain titmous	*Parus inornatus*
Bushtit	*Psaltriparus minimus*
White-breasted nuthatch	*Sitta carolinensis*
Red-breasted nuthatch	*Sitta canadensis*
Brown creeper	*Certhia americana*
House wren	*Troglodytes aedon*
Berwick's wren	*Thryomanes berwickii*
Blue grey gnatcatcher	*Polioptila coerulea*
Ruby-crowned kinglet	*Regulus calendula*
Hermit thrush	*Catharus guttatus*
Swainson's thrush	*Catharus ustulatus*
American robin	*Turdus migratorius*
Western bluebird	*Sialia mexicana*
Northern mockingbird	*Mimus polyglottos*
Cedar waxwing	*Bombycilla cedrorum*
European starling	*Sturnus vulgaris*
Hutton's vireo	*Vireo huttoni*
Solitary vireo	*Vireo solitarius*
Warbling vireo	*Vireo gilvus*
Orange-crowned warbler	*Vermivora celata*
Yellow warbler	*Dendroica petechia*
Wilson's warbler	*Wilsonia pusilla*
Yellow warbler	*Dendroica petechia*
Yellow-rumped warbler	*Dendroica coronata*

Continued

TABLE VIII-2 (Continued)

WILDLIFE SPECIES POTENTIALLY OCCURRING AT PUTAH CREEK NEAR WINTERS

COMMON NAME	SCIENTIFIC NAME
Hermit warbler	*Dendroica occidentalis*
Magillivray's warbler	*Oporornis tolmiei*
Common yellowthroat	*Geothylpis trichas*
Nashville warbler	*Vermivora ruficapilla*
Yellow-breasted chast	*Icteria virens*
Wilson's warbler	*Wilsonia pusilla*
Black-headed grosbeak	*Pheucticus melanocephalus*
Lazuli bunting	*Passerina amoena*
Lesser goldfinch	*Carduelis psaltria*
Rufous-sided towhee	*Pipilo erythrophthalmus*
Brown towhee	*Pipilo fuscus*
Fox sparrow	*Passerella iliaca*
Song sparrow	*Melospiza melodia*
Golden-crowned sparrow	*Zonotrichia atricapilla*
White-crowned sparrow	*Zonotrichia leucophrys*
Dark-eyed junco	*Junco hyemalis*
Red-winged blackbird	*Agelaius phoeniceus*
Western meadowlark	*Sturnella neglecta*
Brewer's blackbird	*Euphagus cyanocephalus*
Brown-headed cowbird	*Molothrus ater*
northern oriole	*Icterus galbula*
House finch	*Carpodacus mexicanus*
House sparrow	*Passer domesticus*
Mammals	
Virginia opossum	*Didelphis virginiana*
Ornate shrew	*Sorex ornatus*
Broad-footed mole	*Scapanus latimanus*
Little brown bat	*Myotis lucifigus*
Small-footed bat	*Myotis leibii*
Yuma bat	*Myotis yumanensis*
Brazilian free-tailed bat	*Tadarida brasilensis*
Audobon's cottontail	*Sylvigilagus audobonii*
Botta's pocket gopher	*Tyomomys bottae*
Beaver	*Castor canadensis*
Muskrat	*Ondatra zibethicus*
Deer mouse	*Peromyscus maniculatus*
Black rat	*Rattus rattus*
Coyote	*Canis latrans*
Gray fox	*Urocyon cinereoargenteus*

Continued

TABLE VIII-2 (Continued)

WILDLIFE SPECIES POTENTIALLY OCCURRING AT PUTAH CREEK NEAR WINTERS

COMMON NAME	SCIENTIFIC NAME
Raccoon	*Procyon lotor*
Ringtail	*Bassariscus astutus*
Long-tailed weasel	*Mustela frenata*
Striped skunk	*Mephites mephites*
Amphibians	
California newt	*Taricha tarosa*
California newt salamander	*Batrachoseps attenuatus*
Western toad	*Bufo boreas*
Pacific treefrog	*Hyla regilla*
Bullfrog	*Rana catesbeiana*
REPTILES	
Western pond turtle	*Clemmys marmorata*
Western fence lizard	*Sceloporus occidentalis*
Gopher snake	*Pituophis melanoleucus*
Western aquatic garter snake	*Thamnophis couchii*
King snake	*Lampropheltis getulus*
Fish	
American shad	*Alosa sapidissima*
Brownbullhead	*Ictalurus nebulosus*
Sacramento sucker	*Catostomus occidentalis*
Sculpin	*Cottus sp.*
Carp	*Cyprinus carpio*
Pacific lamprey	*Entosphenus tridentatus*
Mosquitofish	*Gambusia affinis*
California roach	*Hesperoleucus symmetricus*
White catfish	*Ictalurus catus*
Green sunfish	*Lepomis cyanellus*
Blue gill	*Lepomis macrochirus*
Smallmouth bass	*Micropterus dolomieu*
Hardhead	*Mylopharodon conocephalus*
Chinook salmon	*Oncorhynchus tshawytscha*
Sacramento squawfish	*Ptychocheilus grandis*
Speckled dace	*Rhinichthys osculus*
Rainbow trout	*Salmo gairdnerii*

Sources: Putah Creek Advisory Committee, 1989; Environmental Science Associates, 1988

Swainson hawk (*Bueto swainsoni*).

Swainson hawk is listed as a state threatened species. The Natural Diversity Data Base indicates a possible nest site about seven miles northeast of the General Plan area. However, an active Swainson hawk nest has been observed during intensive surveys about three miles east of Winters along Putah Creek (communication with Jim Estep, Jones and Stokes Associates, 1990). Swainson hawk have also been observed foraging for small mammals and birds in the agricultural fields north and east of Winters, including agricultural lands within Winters' Urban Limit Line. Hay and grain crops, such as alfalfa and wheat, certain row crops, such as tomatoes and beets, and low growth pastures and fallow fields not dominated by thistle provide important foraging habitat for the Swainson hawk, particularly after harvest, discing, or flooding.

Swainson hawk is a summer breeding resident of the Central Valley, generally occurring in areas where riparian woodland and surrounding agricultural lands provide roosting, nesting, and foraging habitat. The loss of nesting and foraging habitat has greatly reduced the breeding range and abundance of Swainson hawk in California, with an estimated decline of 90 percent in the breeding population between 1900 and 1979. Originally adapted to open grasslands, the hawk has become increasingly dependent on agricultural lands as native plant communities have been converted to agricultural uses. In recognition of this dramatic decline in population, and loss of critical foraging and nesting habitat, the hawk was designated as a threatened bird species by the Fish and Game Commission in 1983.

Agricultural crop patterns currently influence the distribution and abundance of Swainson hawk in the Central Valley, and foraging behavior reflects changes in prey density and availability. Suitable foraging habitat includes open grassland or lightly-grazed dryland pasture, alfalfa and other hay crops, fallow fields, and combinations of hay, grain, and row crops such as tomato and sugar beets. Unsuitable foraging habitat includes any crop-type in which prey are inaccessible, or which do not support adequate prey populations, such as vineyards, orchards, rice, and cotton. Expansion of those crop types will continue to eliminate Swainson hawk foraging habitat, contributing to the continued reduction of the breeding population in the Central Valley.

Large, open expanses of foraging habitat adjacent to or within an estimated 10 miles radius are required for nesting, with distance from nest site and availability of suitable crop types considered to be limiting factors to successful reproductive performance. Except where existing urban development or unsuitable crops are cultivated, much of the Winters area meets these two basic criteria used by the CDFG in determining whether a particular area provides suitable foraging habitat for Swainson hawk. Although foraging habitat is commonly proximate to nest sites, Swainson hawk have been documented foraging up to 18 miles for a nest. The hawk is very sensitive to habitat fragmentation, and is know to avoid otherwise suitable foraging habitat where prey populations may exist but large lot "ranchette" development has occurred.

Western yellow billed cukoo (*Coccyzus americanus occidentalis*).

This subspecies is listed as State threatened. Western yellow billed cuckoo is a summer breeder in California, and generally occurs along corridors of dense riparian woodland and nearby orchards in the Central Valley and along the Colorado River. This subspecies is dependent on its primary food source, caterpillars, which generally occur within well-developed riparian forest. There are no records of western yellow billed cuckoo nesting along Putah Creek, and the narrow band of riparian vegetation provides only poor to marginally suitable breeding habitat, making their occurrence in the Winters area unlikely.

Tricolored blackbird (*Agelaius tricolor*).

The tricolored blackbird is a candidate species (category 2) for federal listing. Although it has declined substantially in recent years, the tricolored blackbird is widespread in marshes and agricultural fields of the Central Valley. Colonies often are found along irrigation ditches and over waterways where dense cattail or bulrush provide nesting substrate and protective cover. The decline of this species is likely the result of several factors, including: disturbance during the breeding season; competition with other blackbird species such as red-winged blackbird; destruction of suitable breeding habitat; and poisoning by farmers to control blackbird populations which feed on agricultural crops. Several channels provide moderate nesting habitat for tricolored blackbird in the Winters area, although no sightings of this species have been recorded from the area.

Mountain plover *(Charadrius mountanus)*.

Mountain plover is a candidate species (category 2) for federal listing. This small plover winters in the Central Valley of California, feeding in grassland and agricultural fields. The plover has been occasionally observed in agricultural fields in Yolo County, and individuals may frequent the Winters area as part of their winter range.

Burrowing owl *(Athene cunicularia)*.

Burrowing owl has no state or federal listing, but is recognized as a Species of Special Concern by the CDFG. The owl is a ground nesting species known to occupy rodent burrows throughout open uplands in the Central Valley. Destruction of California ground squirrel colonies, conversion of pastureland to agricultural and urban development, poisoning, and human disturbance have been the major reasons for the decline of this species. Nesting birds have been observed to the west of Yolo County Airport. Suitable habitat occurs in the Winters area where intensively managed agricultural crops and human disturbance have not curtailed nesting.

Pacific western big-eared bat *(Plecotus townsendii townsendii)*.

This western subspecies of big-eared bat is a candidate (category 2) for federal listing and a CDFG Species of Special Concern. The big-eared bat is a colonial species, with individuals showing great fidelity to both their group and chosen roost sites. Although the big-eared bat is generally a cave dwelling species that takes refuge in crevices, the big-eared bat will only roost in the open, hanging from walls and ceilings where it is particularly vulnerable to disturbance. Winters is within the known geographic range of pacific western big-eared bat, and although no reported sightings of the bat have been made, there is a slight possibility that existing structures, such as abandoned buildings or upper levels of barns, provide roosts for a bat colony.

California tiger salamander *(Ambystoma tigrinum californiese)*.

The California tiger salamander is a candidate (category 2) for federal listing and a CDFG Species of Special Concern. The distribution of this subspecies has declined due to the conversion of valley and foothill grassland habitat to agricultural and urban uses. Adults are believed to occupy burrows of California ground squirrels and other rodents for much of the year, migrating to nearby water sources to breed following the first hard rains in fall or winter. The salamander breeds in temporary pools and permanent water, usually associated with grassland and open woodlands, where the water source lasts at least through late spring to permit development of larval young. The extent of modification to upland retreat habitat along Putah and Dry creeks limits the likelihood of occurrence within the Winters area,

although no detailed studies have been conducted to confirm the presence or absence of this subspecies. Protection of vernal pools, ponds, and other suitable breeding and upland habitat is critical for the survival of this subspecies.

Valley elderberry longhorn bettle (*Desmocerus californicus dimorphus*).

Valley elderberry bettle (VELB) is a federal threatened species, and has been reported at several locations along Putah Creek. During a survey of Putah Creek in the Winters area by the Putah Creek Advisory Committee conducted in February 1989, adult beetle holes were observed in branches and stems of elderberry bushes (Sambucus mexicana) at two locations. This natural resource survey was not intended as a complete survey for the VELB; other elderberry bushes with exit holes are likely, and adult bettles may be present at the proper time of year.

The VELB is restricted to riparian areas in the Central Valley of California, where its host plant, the blue elderberry occurs. The VELB depends on the valley elderberry for the completion of its life cycle, consuming the foliage and depositing eggs in the pith of branches and stems. The larvae consume pith and cut holes in the stem as they emerge. These exit holes are readily identifiable and their presence is an indication of the occurance of the bettle. The adults emerge from the elderberry stems, fly, mate, and deposit eggs during the flowering period of the elderberry. Loss of habitat in California has led to the listing of this subspecies as threatened. Protection of elderberry shrubs is critical for protection of the subspecies. The USFWS considers any stand of elderberry to be potentially suitable habitat for the bettle, and generally requires that existing plans be protected, transplanted, or replaced at ratios of 3:1 to 5:1.

Adobe lilly (*Fritillaria pluriflora*).

Adobe lily is a candidate plant (category 2) for federal listing. Populations have typically been reported from chaparral, open woodland and valley grassland plant communities, often on adobe soils. No populations have been recorded from the Winters area, and most have been reported to the southwest along the slopes of the interior foothills of the Coast Range. A questionable occurrence record for this species was made approximately ten miles southwest of Winters in 1925.

AIR RESOURCES

Regional Setting

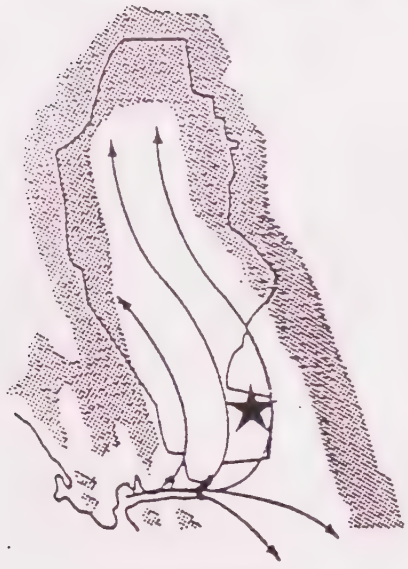
Winters is located in the southern portion of the Sacramento Valley Air Basin. Yolo County, Sacramento County, and portions of Placer and Solano Counties constitute the Sacramento Air Quality Maintenance Area (AQMA), the air quality planning area for the Sacramento Region.

Winters lies within the southern portion of the Sacramento Valley, which is bounded by the Coast Ranges on the west and the Sierra Nevada on the east. The Carquinez Strait is a sea level gap in the coastal range located 40 miles southwest of the study area, and the intervening terrain is flat.
Air quality in Winters is affected by a number of factors, including its location between the San Francisco Bay area and the metropolitan Sacramento area, and its close proximity to agricultural operations.

Airflow patterns in the Sacramento Valley Air Basin can generally be characterized by one of eight directional types illustrated in Figure VIII-4. The percentage of occurrence of these airflow types as they vary by 6-hour intervals and by season of the year is described in Table VIII-3. Examination of the data in Table VIII-3 reveals seasonal and diurnal variations of consequence in airflow types. For example, the sea breeze pattern (Type I on Figure VIII-4) dominates the wind flow in spring and summer, especially

FIGURE VIII-4

AIR FLOW PATTERNS OF THE SACRAMENTO VALLEY AIR BASIN



I Full Sea Breeze

II Upper Valley Convergence

III Lower Valley Convergence

IV Mid Valley Divergence

V Northerly (Winds > 5 k)

VI Southerly (No Marine Air)

VII Downslope (Winds < 6 k)

VIII Upslope (Winds < 6 k)

IX "Schultz Eddy"

Sources: California Air Resources Board, Aerometric Data Division, 1984
Sacramento Area Council of Governments, May 1988

in the afternoon. In the winter, calm conditions and poor ventilation (Type IX in Figure VIII-4) dominate the late evening and early morning atmosphere.

TABLE VIII-3

SACRAMENTO VALLEY AIR BASIN SURFACE AIRFLOW TYPES SEASONAL AND DIURNAL PERCENTAGE OF OCCURRENCE (1977-1981 DATA)

Winter	I Full Sea Breeze	II Upper Valley Conver-gence	III Lower Valley Conver-gence	IV Mid Valley Conver-gence	V North-erly (>5 Kts)	VI South-erly, No Marine Air	VII Down-slope (<5 Kts)	VIII Upslope (< 5 Kts)	IX Calm
4 a.m.	6	4	4	1	22	23	8	4	27
10 a.m.	7	6	5	3	31	22	9	2	15
4 p.m.	13	6	3	10	26	22	7	3	8
10 p.m.	8	5	3	2	19	22	8	4	23
All Times	9	5	5	4	25	22	8	3	18
Spring									
4 a.m.	19	17	14	0	21	8	9	4	10
10 a.m.	27	11	10	2	35	5	3	3	2
4 p.m.	43	8	4	7	28	6	1	1	2
10 p.m.	26	22	14	1	14	5	8	2	7
All Times	29	14	10	3	25	6	5	3	5
Summer									
4 a.m.	40	25	20	1	6	0	1	2	7
10 a.m.	48	14	16	3	17	0	1	1	*
4 p.m.	75	7	4	4	11	0	*	0	*
10 p.m.	57	20	14	0	4	0	1	1	3
All Times	55	16	13	2	9	0	1	1	3
Fall									
4 a.m.	13	13	16	1	17	6	13	2	21
10 a.m.	21	8	12	3	35	7	7	2	5
4 p.m.	33	8	4	11	26	7	5	3	3
10 p.m.	20	18	9	1	14	6	12	3	18
All Times	22	12	10	4	23	6	9	2	12
4 a.m.	20	15	14	1	17	9	8	3	16
10 a.m.	26	10	11	3	30	9	5	2	6
4 p.m.	41	7	4	8	23	9	3	2	3
10 p.m.	30	16	11	1	10	8	7	3	13
All Times	29	12	10	3	20	9	6	2	9

* < 0.5 percent

Note: Due to rounding of percentages, the sum of hourly percentages for airflow types will not always equal 100 percent.
Source: California Air Resources Board, Aerometric Data Division 1984.

TABLE VIII-4

AMBIENT AIR QUALITY STANDARDS APPLICABLE IN CALIFORNIA

Pollutant	Symbol	Averaging Time	Standard, as ppm		Standard, as ug/m 3		Violation Criteria	
			Calif	Nat'l	Calif	Nat'l	Calif	Nat'l
Ozone	03	1 hour	0.09	0.12	200	235	if equaled or exceeded	if exceeded on more than 3 days in 3 years
Carbon Monoxide	CO	8 hours	9	9	10,000	10,000	if exceeded	if exceeded on more than one day per year
		1 hour	20	35	23,000	40,000		
(Lake Tahoe Only)		8 hours	6	---	7,000	---		
Nitrogen Dioxide	NO2	annual average	---	0.05	---	100	if equaled or exceeded	if exceeded
		1 hour	0.25	---	470	---		
Sulfur Dioxide	SO2	annual average	---	0.03	---	80	if exceeded	if exceeded
		24 hours	0.25	0.14	131	365		if exceeded on more than one day per year
		1 hour	0.5	---	655	---		
Hydrogen Sulfide	H2S	1 hour	0.03	---	42	---	if equaled or exceeded	
Vinyl Chloride	C2H3C1	24 hours	0.010	---	26	---	if equaled or exceeded	
Particulate Matter, 10 microns or less	PM10	annual geometric mean	---	---	30	50	if exceeded	if exceeded
		24 hours	---	---	50	150		if exceeded on more than one day per year
Sulfate Particles	SO4	24 hours	---	---	25	---	if equaled or exceeded	
Lead Particles	Pb	calendar quarter	---	---	---	1.5	if equaled or exceeded	if exceeded on more than one day per year
		30 days		---	1.5	---		

ppm = parts per million by volume.
ug/m 3 = micrograms per cubic meter.
All standards are based on measurements at 25 degrees C and 1 atmosphere pressure.
National standards shown are the primary (health effects) standards.
The California 24-hour standard for SO2 applies only when state 03 or PM10 standards are being violated concurrently.

Air Quality Standards and Management Plans

The federal *Clean Air Act* establishes air quality standards for several pollutants and requires areas that violate these standards to prepare and implement plans to achieve standards by certain deadlines. State and federal air quality standards are detailed in Table VIII-4. The pollutants of greatest concern in the greater Sacramento area and most of California are ozone (the major component of smog) and carbon monoxide.

Both the state and federal governments have established a variety of ambient air quality standards for various pollutants. Air quality standards are divided into primary standards, which are designated to protect public health, and secondary standards, which are intended to protect the public welfare from effects such as visibility reduction, soiling, nuisance, and other forms of damage.

The state one-hour ozone standard is 0.09 ppm (parts per million, by volume), not to be equalled or exceeded. The federal one-hour ozone standard is 0.12 ppm, not to be exceeded more than three times in any three-year period.

State and federal carbon monoxide (CO) standards have been set for both one-hour and eight-hour averaging times. The state one-hour CO standard is 20 ppm, while the federal one-hour CO standard is 35 ppm. Both state and federal standards are 9 ppm for the eight-hour averaging period. State CO standards are specified as values never to be exceeded. Federal CO standards are specified as values not to be exceeded more than once per year.

Federal Programs

The federal *Clean Air Act*, as amended, requires the state to identify areas not meeting the federal primary standards (non-attainment areas).

The Yolo-Solano Air Pollution Control District is designated as "unclassified" with respect to the federal standards for sulfur dioxide and nitrogen dioxide. The District is considered in attainment of the federal primary standard for suspended particulates.

Measurements made within the District show attainment of the federal ozone and carbon monoxide standards but the District is technically a non-attainment area for these pollutants because of its inclusion within the Sacramento Area Quality Maintenance Area (AQMA).

The federal *Clean Air Act Amendments* of 1990 require that non-attainment areas develop plans and strategies that will reduce pollutants by 15 percent during the first 6 years, then 3 percent annually thereafter until the standards are met.

The 1977 amendments to the federal *Clean Air Act* require that the Sacramento Area Council of Governments, as the designated metropolitan planning organization, not approve any transportation projects unless they are shown to be in conformance with the locally-adopted portion of the State Implementation Plan.

The new act may override interim plans developed since the expiration of the last act. Secondly, and more important within the Sacramento AQMA, the mechanism/model for translating emissions at one time and place within the AQMA into ambient air quality later at some downwind location is generally deficient.

A new effort will not be completed until 1992. Any current air quality planning efforts, both because of uncertain planning requirements and limited data accuracy, must be considered tentative.

An "*Interim Regional Air Quality Plan*" (Committee Draft, 9/12/89) has been prepared as a temporary measure to keep the airshed on a positive tract until more specific mandates and better analysis tools are available. The objectives of the interim plan are to present updated emission inventories for future planning, to evaluate and rank various emissions control strategies, and to develop an interim program to implement these strategies. The current "bridging" plan also requires that a program for monitoring implementation effectiveness be established to routinely report on progress toward attainment.

To implement the objectives of the Implementation Plan, the Yolo-Solano Air Pollution Control District staff is in the process of updating the District's *Air Quality Management Plan*. A draft management plan should be completed in 1992.

State Programs

The California *Clean Air Act* requires air pollution control districts (Yolo-Solano Air Polution Control District for Yolo County) to prepare air quality attainment plans for ozone.

Generally, these plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods. The act also grants air districts explicit statutory authority to adopt indirect source regulations and transportation control measures, including measures to encourage or require the use of ridesharing, vanpooling, flexible work hours or other measures which reduce the number or length of vehicle trips.

The California *Clean Air Act* requires that local air pollution control districts implement Transportation Control Measures (TCMs) to reduce air pollutant emission. Specific transportation performance standards are part of the California *Clean Air Act* requirements, including:

- Substantially reduce the rate of increase in passenger vehicle trips and vehicle miles travelled;
- Achieve a 1.5-person vehicle occupancy rate during the peak travel periods of 1999; and
- Provide for no net increase in vehicle emission beyond the year 1997.

Winters is located in the Yolo-Solano Air Pollution Control District (YSAPCD). The District operates air quality monitoring at several locations in the county. The closest permanent multi-pollutant monitoring site is located in Woodland, about 15 miles northeast of Winters. The YSAPCD also monitors ozone at Vacaville located about 12 miles southwest of Winters. The California Air Resources Board maintains a special monitoring site for ozone in Davis, located about 12 miles east of Winters.

Emissions

Urban emissions in the Yolo and Sacramento County areas are the primary source of both ozone and carbon monoxide. Table VIII-5 shows the results of air quality monitoring in Yolo County.

TABLE VIII-5

SUMMARY OF AIR QUALITY DATA

Site	Number of Days Exceeding Standard In: 1986	1987	1988	1989
	Ozone (State Standard - 0.09 PPM)			
Woodland	7	17	22	1
Vacaville	0	12	2	4
Davis	4	*	15	1
	Ozone (Federal Standard = 0.12 PPM)			
Woodland	0	1	0	0
Vacaville	0	0	0	0
Davis	0	*	0	0
	Suspended Particulate (State 24-Hour Standard = 50 ug/m3)			
Woodland	7	8	19	8
Vacaville	*	*	4	5

**Not measured or data incomplete*

Source: Yolo-Solano Air Pollution Control District

Table VIII-6 lists the sources of emissions in Yolo County that contribute to ozone and particulate problems. The table includes estimates of current emissions and projections of future emissions. The data are disaggregated by emission source category.

There are no significant "point" sources of emissions in the Winters area.

TABLE VIII-6

EMISSIONS PROJECTIONS IN TONS PER DAY AND PERCENTAGE OF TOTAL
Yolo County

Source Category	Reactive Organic Compounds								Nitrogen Oxides								Particulate Matter							
	1981		1990		1995		2000		1981		1990		1995		2000		1981		1990		1995		2000	
	tn/dy	percent	tn/dy	percent	tn/dy	percent	tn/dy	percent	tn/dy	percent	tn/dy	percent	tn/dy	percent	tn/dy	percent	tn/dy	percent	tn/dy	percent	tn/dy	percent	tn/dy	percent
Fuel Combustion	0.10	0.49%	0.10	0.51%	0.10	0.52%	0.10	0.49%	1.70	9.71%	1.70	10.06%	1.50	11.65%	2.10	12.33%	0.30	0.41%	0.30	0.42%	0.30	0.40%	0.30	0.37%
Agricultural Waste Burning	0.60	2.95%	0.60	3.06%	0.70	3.66%	0.70	3.31%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	1.30	1.91%	1.30	1.82%	1.10	1.44%	1.50	1.85%
Other Waste Burning	0.10	0.49%	0.10	0.51%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.10	0.15%	1.10	1.56%	0.30	0.33%	0.10	0.12%
Solvent Use	5.00	24.63%	5.20	26.53%	5.50	28.83%	6.60	31.13%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%
Petroleum Process, Storage and Transfer	3.00	14.78%	3.00	15.31%	3.10	16.23%	3.10	14.65%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%
Industrial Processes	0.10	0.49%	0.10	0.51%	0.10	0.52%	0.20	0.95%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	2.60	3.82%	2.60	3.65%	2.10	3.01%	2.50	3.57%
Pesticide Application	1.50	7.39%	1.50	7.65%	1.70	8.90%	1.90	8.98%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%
Farming Operations	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	30.10	44.20%	30.50	42.78%	32.20	43.42%	33.10	41.63%
Construction & Demolition	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	4.10	6.02%	4.30	6.03%	5.50	7.25%	6.10	7.68%
Entrained Road Dust From Paved Sources	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	23.20	21.33%	20.10	23.13%	23.10	30.33%	25.10	31.28%
Entrained Road Dust From Unpaved Sources	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	4.20	5.81%	4.10	5.51%	3.10	3.42%	3.10	3.61%
Unplanned Fires	0.10	1.33%	0.10	2.01%	0.10	2.03%	0.10	1.03%	0.10	0.53%	0.10	0.53%	0.10	0.60%	0.10	0.55%	0.50	0.72%	0.50	0.70%	0.50	0.65%	0.50	0.62%
SUBTOTAL FOR STATIONARY SOURCES	10.30	53.65%	11.10	56.63%	12.00	62.13%	12.30	60.56%	1.80	10.25%	1.80	10.65%	2.00	12.05%	2.20	12.32%	65.20	96.61%	61.50	96.63%	73.50	96.11%	78.30	95.52%
On-Road Vehicles	7.00	31.11%	6.00	30.61%	4.50	23.56%	4.00	18.30%	10.50	62.23%	10.50	62.13%	9.20	54.63%	9.30	56.35%	1.00	2.64%	1.00	2.52%	1.00	2.31%	1.00	2.22%
Off-Road Vehicles	1.20	5.51%	1.20	6.22%	1.30	6.31%	1.10	6.63%	0.20	1.11%	0.20	1.21%	0.20	1.11%	0.20	1.26%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%
Aircraft	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.05	0.22%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.03	0.18%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%
Other Mobile Sources	1.20	5.51%	1.20	6.63%	1.30	6.31%	2.10	13.23%	4.60	26.29%	4.30	25.11%	4.60	27.71%	4.80	29.15%	0.60	0.81%	0.60	0.81%	0.60	0.79%	0.70	0.85%
SUBTOTAL FOR MOBILE SOURCES	11.10	46.33%	8.50	43.33%	7.10	33.13%	8.20	39.06%	15.30	89.71%	15.10	89.35%	14.60	87.85%	14.83	87.01%	2.10	3.52%	2.10	3.33%	2.10	3.16%	2.50	3.04%
GRAND TOTAL FOR ALL SOURCES	20.30	100.00%	19.60	100.00%	19.10	100.00%	21.15	100.00%	17.50	100.00%	16.90	100.00%	16.60	100.00%	17.03	100.00%	67.10	100.00%	71.30	100.00%	75.50	100.00%	81.20	100.00%

Source: Air Resources Board, 1988

Ozone

Ozone is a public health concern because it is a respiratory irritant that also increases susceptibility to respiratory infections. Ozone causes significant damage to leaf tissues of crops and natural vegetation. Ozone also damages many materials by acting as a chemical oxidizing agent.

Ozone, the main constituent of photochemical smog, is primarily a summer and fall period pollution problem. Major sources of regional ozone problems are motor vehicle emissions and volatile organic compounds.

Ozone is not emitted directly into the air, but is formed through a complex series of chemical reactions involving other directly emitted compounds (e.g., various organic compounds, nitric oxides, and nitrogen dioxide). The time required for these reactions allows the reacting compounds to spread over a large area, producing a regional pollutant problem. Ozone problems are the cumulative result of regional development patterns, rather than the result of a few incrementally significant emission sources.

The state ozone standard has been violated at monitoring stations near Winters (Woodland, Davis, Vacaville) in recent years, as shown in Table VIII-5.

Carbon Monoxide

Carbon Monoxide (CO) levels are a public health concern because CO combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. Even relatively low concentrations of CO can significantly affect the amount of oxygen in the bloodstream since CO binds to hemoglobin 220 to 245 times more strongly than does oxygen. Both the cardiovascular system and the central nervous system can be affected when 2.5 to 4.0 percent of the hemoglobin in the bloodstream is bound to CO rather than to oxygen. State and federal ambient air quality standards for CO have been set at levels intended to keep CO from combining with more than 1.5 percent of the blood's hemoglobin.

Relatively low winter temperatures and wind velocities combine with high traffic volumes to produce high CO levels. Motor vehicle emissions are the dominant source of CO in most areas. As a directly emitted pollutant, CO is transported from the emission source accompanied by dispersion and reduced concentrations. Consequently, CO problems tend to be relatively localized, often resulting from a combination of high traffic volumes and congestion.

CO problems typically occur in the vicinity of major traffic arteries with significant adjacent commercial development. Commercial development is an important contributing factor for two reasons. First, parking lots within such developments augment emissions from vehicle traffic on adjacent roadways. Second, vehicles leaving major parking lots are likely to be in a "cold start" operating mode, resulting in higher CO emission rates than are typical for traffic on major roadways.

Only one monitoring station in Yolo County records data on CO concentrations. This station, located in Woodland, has no recorded violations of a CO standard. Given Winters' relatively low peak-hour traffic volumes, it is unlikely that CO standards have been exceeded in the city.

Suspended Particulate Matter

Suspended particulate matter consists of solid and liquid particles of dust, soot, aerosols and other matter which are small enough to remain suspended in the air for a long period of time. A portion of the

suspended particulate matter in the air is due to natural sources such as wind blown dust and pollen. Man-made sources include combustion, automobiles, field burning, factories, and unpaved roads.

The effects of high concentrations on humans include aggravation of chronic disease and heart/lung disease symptoms. Non-health effects include reduced visibility and soiling of surfaces. (See also, Hazardous Materials discussion in Chapter IX, Health and Safety)

Lead

Atmospheric lead occurs in the form of airborne lead particles. The dominant source of lead in urban atmospheres is lead compounds contained in gasoline.

Lead accumulates in the body tissues, where it impairs blood function and nerve construction.

EXTRACTIVE RESOURCES

While extensive gravel extraction operations are occurring along Cache Creek, approximately 10 miles to the north, and other places in Yolo County, no mining or quarrying operations currently exist in the Winters area. Most of the area is classified as MRZ-1 by the California Division of Mines which means that no significant mineral deposits are present. Lands classified as MRZ-1 are not affected by state policies pertaining to the maintenance of access to regionally significant mineral deposits under the California Surface Mining and Reclamation Act of 1975.

Part of Winters lies over the Pleasant Creek Gas Field. According to the State Division of Oil and Gas, there are four abandoned gas wells in the immediate Winters area. It is not known whether these wells have been formally abandoned according to state requirements. If they have not been properly abandoned, they must comply with state reabandoned regulations before development over or near the wells occurs.

GLOSSARY

Air Pollution
Concentrations of substance found in the atmosphere that exceed naturally occurring quantities and are undesirable or harmful in some way.

Aquifer
An underground, water-bearing layer of earth, porous rock, sand, or gravel, through which water can seep or be held in natural storage. Aquifers generally hold sufficient water to be used as a water supply.

Carbon Dioxide
A colorless, odorless, highly poisonous gas produced by automobile and other machines with internal combustion engines that imperfectly burn fossil fuels such as oil and gas.

Endangered Species
A species of animal or plant is considered to be endangered when its prospects for survival and reproduction are in immediate jeopardy from one or more causes.

Erosion
(1) The loosening and transportation of rock and soil debris by wind, rain, or running water.
(2) The gradual wearing away of the upper layers of earth.

Groundwater
Water under the earth's surface, often confined to aquifers capable of supplying wells and springs.

Groundwater Recharge
The natural process of infiltration and percolation of rainwater from land areas or streams through permeable soils into water-holding rocks that provide underground storage ("aquifers").

Habitat
The physical location or type of environment in which an organism or biological population lives or occurs.

Hydrocarbons
A family of compounds containing carbon and hydrogen in various combinations. They are emitted into the atmosphere from manufacturing, storage and handling, or combustion of petroleum products and through natural processes. Certain hydrocarbons interact with nitrogen oxides in the presence of intense sunlight to form photochemical air pollution.

Intermittent Stream
A stream that normally flows for at least thirty (30) days after the last major rain of the season and is dry a large part of the year.

Mineral Resource
Land on which known deposits of commercially viable mineral or aggregate deposits exist. This designation is applied to sites determined by the State Division of Mines and Geology as being a resource of regional significance, and is intended to help maintain the quarrying operations and protect them from encroachment of incompatible land uses.

National Ambient Air Quality Standards

The prescribed level of pollutants in the outside air that cannot be exceeded legally during a specified time in a specified geographical area.

Nitrogen Oxides(s)

A reddish brown gas that is a byproduct of combustion and ozone formation processes. Often referred to as NOX, this gas gives smog its "dirty air" appearance.

Ozone

A tri-atomic form of oxygen (O_3) created naturally in the upper atmosphere by a photochemical reaction with solar ultraviolet radiation. In the lower atmosphere, ozone is a recognized air pollutant that is not emitted directly into the environment, but is formed by complex chemical reactions between oxides of nitrogen and reactive organic compounds in the presence of sunlight, and becomes a major agent in the formation of smog.

Pollution, Non-Point

Sources of pollution that are less definable and usually cover broad areas of land, such as agricultural land with fertilizers that are carried from the land by runoff, or automobiles.

Pollution, Point

In reference to water quality, a discrete source from which pollution is generated before it enters receiving waters, such as a sewer outfall, a smokestack, or an industrial waste pipe.

Rare or Endangered Species

A species of animal or plant listed in: Sections 670.2 or 670.5, Title 14, *California Administrative Code*; or Title 50, *Code of Federal Regulations*, Section. 17.11 or Section 17.2, pursuant to the *Federal Endangered Species Act* designating species as rare, threatened, or endangered.

Resources, Non-renewable

Refers to natural resources, such as fossil fuels and natural gas, that, once used, cannot be replaced and used again.

Riparian Lands

Riparian lands are comprised of the vegetative and wildlife areas adjacent to perennial and intermittent streams. Riparian areas are delineated by the existence of plant species normally found near freshwater.

Runoff

That portion of rain or snow that does not percolate into the ground and is discharged into streams instead.

Siltation

(1) The accumulating deposition of eroded material. (2) The gradual filling in of streams and other bodies of water with sand, silt, and clay.

Special-Status Taxa

Officially designated (rare, threatened, or endangered) and candidate species listed by the California Department of Fish and Game; officially designated (threatened or endangered) and candidate species for listing by the U.S. Fish and Wildlife Service (USFWS); taxa considered to be rare or endangered

under the conditions of Section 15380 of the *State CEQA Guidelines*, such as those identified on lists 1A, 1B, and 2 in the *Inventory of Rare and Endangered Vascular Plants of California*, and other taxa which are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on list 3 and 4 in the *California Native Plan Society Inventory* or identified as "Species of Special Concern" by the California Department of Fish and Game.

Storm Runoff

Surplus surface water generated by rainfall that does not seep into the earth but flows overland to flowing or stagnant bodies of water.

Watercourse

Natural or once natural flowing (perennially or intermittently) water including rivers, streams, and creeks. Includes natural waterways that have been channelized, but does not include manmade channels, ditches, and underground drainage and sewage systems.

Watershed

The total area above a given point on a watercourse that contributes water to its flow; the entire region drained by a waterway or watercourse that drains into a lake, or reservoir.

Wetlands

Transitional areas between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water. Under a "unified" methodology now used by all federal agencies, wetland are defined as "those areas meeting certain criteria for hydrology, vegetation, and soils."

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Spears, Michael, California Air Resources Board

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CHAPTER IX

HEALTH AND SAFETY

INTRODUCTION

A wide range of environmental hazards must be taken into account in planning for urban development. Some of these hazards are natural, such as seismic shaking; some are purely man-made, such as noise; and others are natural hazards exacerbated by man, such as development in areas sensitive to erosion or liquefaction. Many of these hazards can simply be avoided in the development process through locational decisions, while other hazards can be tolerated or minimized by including mitigation measures in the planning and land use regulation process.

This chapter inventories and assesses the major hazards confronting Winters, including seismic and geologic hazards, fire hazards, flooding, hazardous materials, and noise. Also described are countywide emergency plans which apply to Winters.

SEISMIC AND GEOLOGIC HAZARDS

Geologic Setting

The Sacramento Valley is a large northwest-tending structural trough extending about 150 miles north from the Sacramento-San Joaquin Delta and occupying an area of about 6,000 square miles. It is bounded on the east by the Sierra Nevada and Cascade Ranges and by the Coast Range on the west.

The city of Winters is located in the western portion of the Putah Plain, a physiographic area within the Sacramento Valley formed from two low-sloping and coalescing fans of Putah and Cache Creeks. Here the alluvial plain is partially dissected by eastward flowing streams that drain the Vaca Mountains to the west. Between the Vaca Mountains and the Putah Plain lie the dissected alluvial uplands of the English Hills. To the east the Putah Plain flattens, becoming topographically featureless.

Paleozoic and Mesozoic (geologic time periods covering 70 to 600 million years ago) intrusive, metamorphic and marine sedimentary rocks comprise the basement underlying the Sacramento Valley Basin and the adjacent mountains. The basement rocks are found at considerable depths at the margins. At the bottom of the basin the older rocks are overlain by Eocene (36-54 million years ago) marine and continental (non-marine origin) sedimentary rocks.

Overlying the older sequence of rocks is a thick series of mid-Tertiary to Cenozoic (36 million years ago to present) continental deposits laid in place by streams flowing from the surrounding mountains into the basin, which was subsiding during this time. The principal water-bearing formation on the west side of the Sacramento Valley is the Tehama Formation, which is a clean sand that can range up to 2,250 feet in thickness. Alluvial fans, stream channel deposits, flood plain and flood basin deposits are the most recently deposited materials. Alluvial fans occur mostly on the west side adjacent to the Coast Range. They are relatively thin, but contain highly permeable materials. This assemblage of predominantly sedimentary rocks also includes materials associated with volcanic action.

Alluvial fan deposits of the Putah Plain directly overlie the Tehama Formation. The Putah Plain alluvial fan deposits can be divided into younger and older alluvium. The younger alluvium covers all of the Putah Plain except near the Coast Ranges where older alluvium is exposed along with the Tehama Formation. The younger alluvium, approximately 30 feet thick, and the older alluvium, up to 140 feet thick, comprise the total thickness of approximately 170 feet. The younger alluvium consists mostly of silt and fine sand,

but includes some coarse sand and gravel. The older alluvium is more heterogeneous, containing clays, silts and gravel. The older alluvium can be distinguished from the younger alluvium by its abundance of clay and channelized gravel deposits.

Soil Conditions

Soil types found within the Winters area are categorized into nine soil associations. Figure IX-1 shows the geographic extent of each soil association. In general, the soils are loams with differing percentages of gravel, silts and clays.

In the western part of the Winters area, the Corning Gravelly Loam is the dominant soil type. This is a well-drained gravelly loam generally occurring on dissected terraces. Slopes range from 2 to 15 percent. It has high shrink-swell potential, slight compressibility, high to medium strength, and fair to poor stability. In the eastern part of the Winters area, the Rincon Silty Clay Loam is the most dominant soil type. The Rincon Series, which overlies the local alluvial fans, consists of well-drained silty clay loams. Slopes are 0 to 2 percent. It has a high shrink-swell potential, medium compressibility, medium strength, and fair to poor stability. Other soils in the Winters area consist of the Capay Silty Clay, Brentwood Silty Clay, San Ysidro Loam, Arbuckle Gravelly Loam, and Hillgate Loam. These soils have high shrink-swell potentials, medium to high compressibilities, medium to low strength, and fair to good stability. Limitations for septic tank fields for all of these soils are severe.

Soils are discussed in Chapter VIII, Natural Resources.

Seismic Hazard

The western edge of the Sacramento Valley is in a seismically active region of California. Winters is in Severity Zone III, according to the California Division of Mines and Geology, which has the potential for an earthquake that can cause major damage.

The closest major earthquake in both proximity and time occurred in the vicinity of Vacaville and Winters on April 19, 1892. A quake measuring nearing 6.5 on the Richter Scale (Modified Mercalli VII-VIII) caused major structural damage to Winters and nearby communities, including Vacaville and Dixon. A second quake measuring 6.0 occurred two days later, and the largest of several after-shocks occurred several days later measuring approximately 5.5.

This series of earthquakes is noteworthy because, along with the 1952 Kern County earthquake, the 1983 Coalinga earthquake, and the 1989 Loma Prieta earthquake, it is one of the most significant episodes centered in the area in recorded history.

Due to the deep alluvial soils that are characteristic of the Winters area, the consequences of an earthquake could be significant ground shaking, ground rupture, liquefaction (transformation of a geologic material into a fluid-like state), and differential settling of unconsolidated soil and fill areas. Although the ground-shaking intensity may vary due to a number of factors (i.e., magnitude, distance from epicenter, and properties of the underlying geologic materials), it is estimated that the Winters area could experience an earthquake with a maximum Modified Mercalli Scale Intensity of VIII to X.

To measure the characteristics of an earthquake, the Richter Scale is used to measure the magnitude (or strength) of a quake, while the Mercalli Scale is used to measure the intensity. Table IX-1 describes the effects of the 12 levels of the Mercalli Scale. Table IX-2 compares the Richter and Mercalli scales.

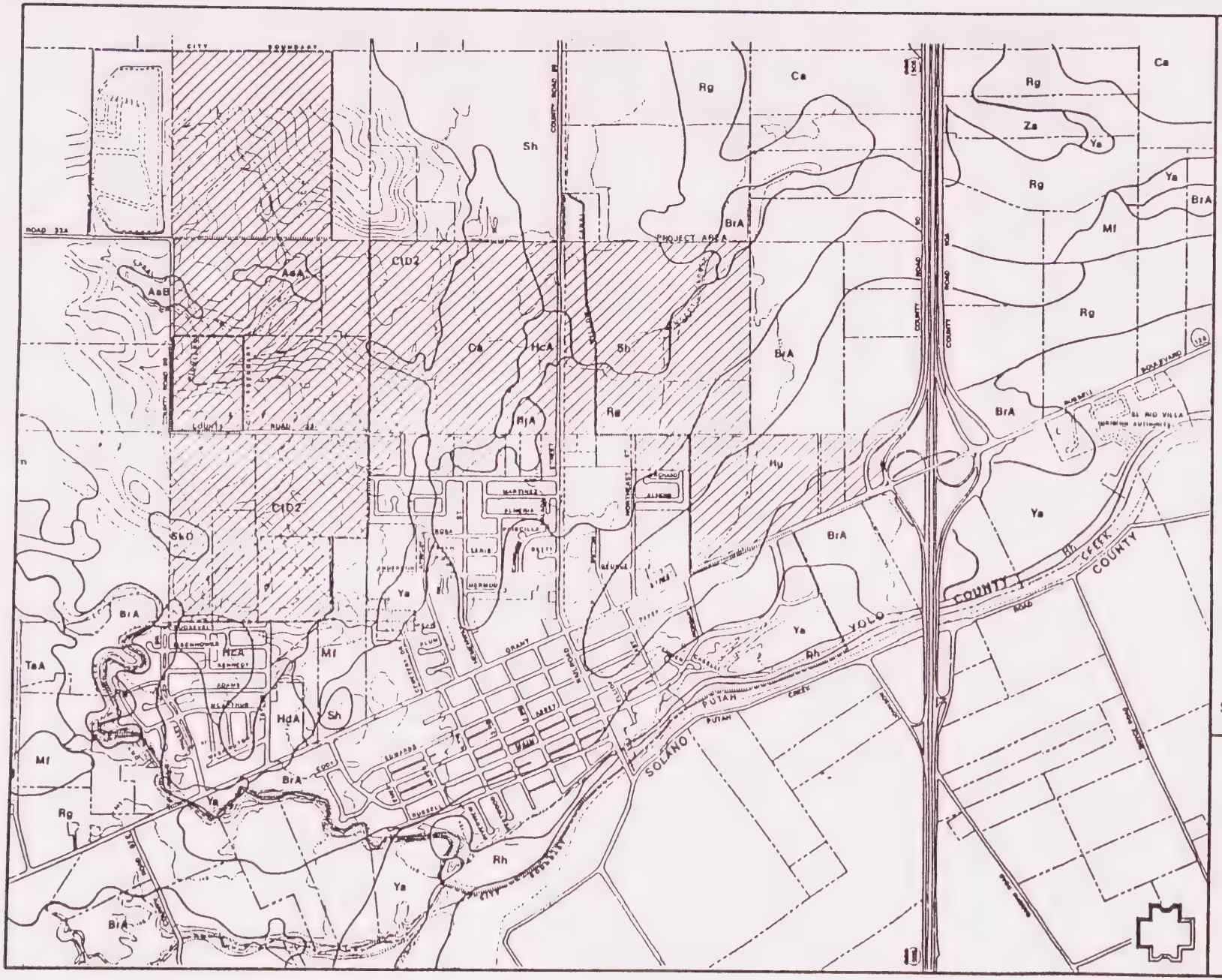

FIGURE IX-1

WINTERS AREA SOILS MAP

AaA	ARBUCKLE GRAVELLY LOAM
AaB	ARBUCKLE GRAVELLY LOAM
BrA	BRENTWOOD SILTY CLAY
Ca	CAPAY SILTY CLAY
ClD2	CORNING GRAVELLY LOAM
HcA	HILLGATE LOAM
Rg	RINCON SILTY CLAY LOAM
Sh	SAN YSIDRO LOAM
SkD	SEHORN COBBLY CLAY

Source: North Area Specific Plan, December 1988

CITY OF WINTERS

N

0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

TABLE IX-1

MODIFIED MERCALLI SCALE OF EARTHQUAKE INTENSITY

Scale	Effects
I.	Earthquake shaking not felt.
II.	Shaking felt by those at rest
III.	Felt by most people indoors; some can estimate duration of shaking.
IV.	Felt by most people indoors. Hanging objects swing, windows and doors rattle, wooden walls and frames creak.
V.	Felt by everyone indoors; many estimate duration of shaking. Standing autos rock. Crockery clashes, dishes rattle, and glasses clink. Doors close, open, or swing.
VI.	Felt by everyone indoors and most people outdoors. Many now estimate not only the duration of the shaking, but also its direction and have no doubt as to its cause. Sleepers awaken. Liquids disturbed, some spilled. Small unstable objects displaced. Weak plaster and weak materials crack.
VII.	Many are frightened and run outdoors. People walk unsteadily. Pictures thrown off walls, books off shelves. Dishes or glasses broken. Weak chimneys break at roofline. Plaster, loose bricks, unbraced parapets fall. Concrete irrigation ditches damaged.
VIII.	Difficult to stand. Shaking noticed by auto drivers, waves on ponds. Small slides and cave-ins along sand or gravel banks. Stucco and some masonry walls fall. Chimneys, factory stacks, towers, elevated tanks twist or fall.
IX.	General fright. People thrown to the ground. Steering of autos affected. Branches broken from trees. General damage to foundations and frame structures. Reservoirs seriously damaged. Underground pipes broken.
X.	General panic. Conspicuous cracks in ground. Most masonry and frame structures destroyed along with their foundations. Some well-built wooden structures and bridges are destroyed. Serious damage to dams, dikes, and embankments. Railroads bent slightly.
XI.	General panic. Large landslides. Water thrown out of banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flatland. General destruction of buildings. Underground pipelines completely out of service. Railroads bent greatly.
XII.	General panic. Damage nearly total, the ultimate catastrophe. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into air.

Source: California Division of Mines and Geology, 1973

TABLE IX-2

APPROXIMATE RELATIONSHIPS BETWEEN
EARTHQUAKE MAGNITUDE AND INTENSITY

Richter Scale Magnitude	Maximum Expected Intensity (MM)*	Distance Felt (kilometers)
2.0 - 2.9	I - II	0
3.0 - 3.9	II - III	15
4.0 - 4.9	IV - V	80
5.0 - 5.9	VI - VII	150
6.0 - 6.9	VII - VIII	220
7.0 - 7.9	IX - X	400
8.0 - 8.9	XI - XII	600

*Modified Mercalli Intensity Scale

Source: *Earthquake Intensity Zonation and Quaternary Deposits, Miscellaneous Field Studies Map 9093*, U.S. Geologic Survey, 1977.

Faults

Faults are indications of past seismic activity. It is assumed that those that have been active recently are the most likely to be active in the future, although even inactive faults may not be "dead." The recency of seismic activity is measured in geologic terms. Geologically recent is within the past two million years (the Quaternary period). All faults believed to have been active during Quaternary time are considered "potentially active." Those that have exhibited activity within the last 11,000 years are considered "active."

Figure IX-2 and Table IX-3 describe the general location of faults in the vicinity of Winters. Seismic activity on these faults has the greatest potential for causing damage in the Winters area. Seismic activity in other parts of the state can also affect the Winters area, but the potential impacts are not as great.

TABLE IX-3

GEOLOGIC FAULTS IN THE VICINITY OF WINTERS

Fault	Approximate Distance from Winters (Miles)	Historical Seismicity	Maximum Probable Earthquake*
San Andreas	57	1906 (8.25)*	7.5
Hayward	37	1836, 1868 (7.25)	6.5-7
Calaveras	27	1861 (6.5-7)	6.5-7
Concord-Green Valley	22	1955 (5.4; small events on Green Valley; creep on Concord	6.0
Midland	.5	Possible source of major earthquake (in 1892)	6.9

*Richter Scale Readings

Source: *Lighthouse Marina EIR/EIS*, EDAW, Inc., November, 1985

San Andreas Fault Zone

The San Andreas Fault is one of the longest, most thoroughly studied, and most active faults in the world. Some sections in the Central Coast Ranges are creeping at rates as great as 3.5 centimeters per year. Other segments, north and south of the creep areas, exhibit no detectable movement. The fault in those areas appears to be temporarily "locked." It is generally agreed that a "locked" condition allows stresses to accumulate more rapidly, thus shortening the time between major earthquakes.

There is presently movement along some of the fault's length, and numerous smaller earthquakes are recorded from the fault zone. It is generally accepted that moderate to great earthquakes will take place along the San Andreas Fault in the foreseeable future. An earthquake along this fault could cause serious damage in Yolo County. The October 1989 Loma Prieta earthquake occurred along the San Andreas Fault, with the epicenter located near Hollister.

Hayward Fault

The Hayward Fault is located east of San Francisco Bay and extends southeast to where it probably merges with the Calaveras Fault north of Hollister. A review of the recent history of this fault shows two major earthquakes (1836 and 1868), each with an estimated Richter Scale magnitude of 6.5 to 7.5. Current measurements indicate creeping at rates up to one centimeter per year in places. Numerous small earthquakes (Richter Scale magnitude of 3 to 5) have occurred along this fault in recent years.

Calaveras Fault

The Calaveras Fault borders the eastern flank of the Berkeley-Hayward Hills, and extends to the southeast. Epicenters of recent earthquakes of Richter Magnitude of 4.5 have been located along or near this fault. In 1868, an earthquake of unknown magnitude caused ground breakage near Danville. Several centimeters of creep have been measured in Hollister, where a Calaveras Fault trace cuts through a residential area.

Green Valley - Concord Faults

This fault zone, extending from Walnut Creek to west of Fairfield, has experienced displacement along most of its length within recent geologic time. An earthquake of 5.4 magnitude occurred in 1955 along part of this fault near Concord. There is currently evidence of some movement along the fault near Concord. The greatest probable earthquake generated by this fault is not expected to exceed a magnitude of 7.0 on the Richter Scale.

Midland Fault

The Midland Fault, which extends from Bethel Island in the Delta to east of Lake Berryessa, is located immediately northeast of the city.

In the past, the 1892 earthquake has been attributed to the Midland Fault because traces of the fault have been mapped through the east and west sides of Winters. However, the Midland Fault is not considered to be active by the California Division of Mines and Geology because it is buried along much of its length and there is no evidence that recent geologic units have been cut by the fault; however, it is possible that the 1892 earthquake could have had a deep source, with no corresponding surface expression. The estimated maximum probable earthquake magnitude for the Midland Fault is 7.0 on the Richter Scale.

Groundshaking

The most serious direct earthquake hazard is the damage or collapse of buildings and other structures caused by groundshaking.

Groundshaking is the vibration which radiates from the epicenter of an earthquake. Damage to structures from groundshaking is caused by the transmission of earthquake vibrations from the ground into the structure. The intensity of the vibration or shaking and its potential impact on buildings and other urban development is determined by several factors:

- The nature of the underlying materials, including rock and soil;
- The structural characteristics of a building;

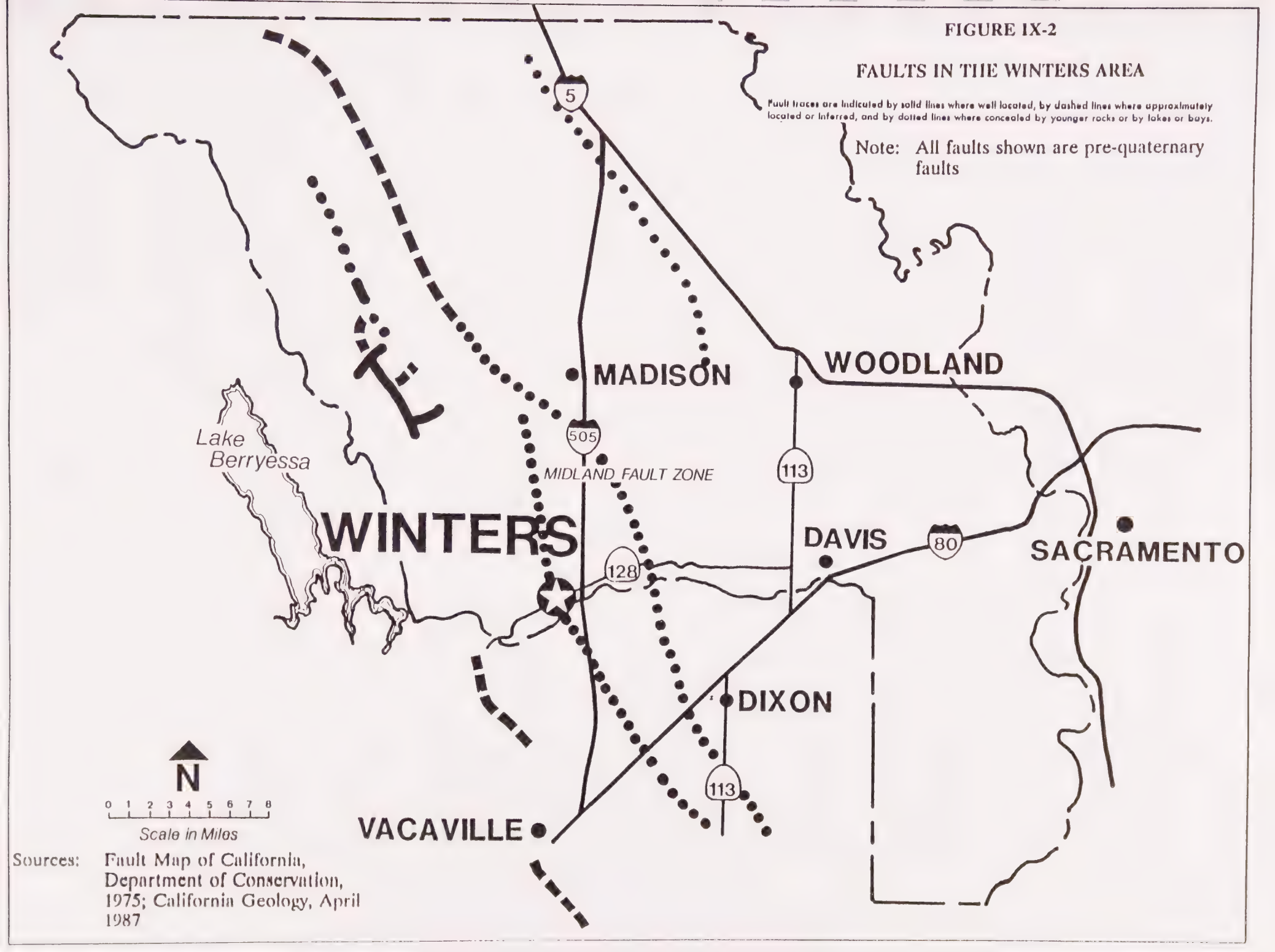
FIGURE IX-2
FAULTS IN THE WINTERS AREA
Fault traces are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays.
Note: All faults shown are pre-quaternary faults
MADISON
WOODLAND
Lake Berryessa
MIDLAND FAULT ZONE
WINTERS
DAVIS
SACRAMENTO
DIXON
VACAVILLE
5
505
113
128
80
N
0 1 2 3 4 5 6 7 8
Scale in Miles
Sources: Fault Map of California, Department of Conservation, 1975; California Geology, April 1987

Hayward Fault

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FIGURE IX-2

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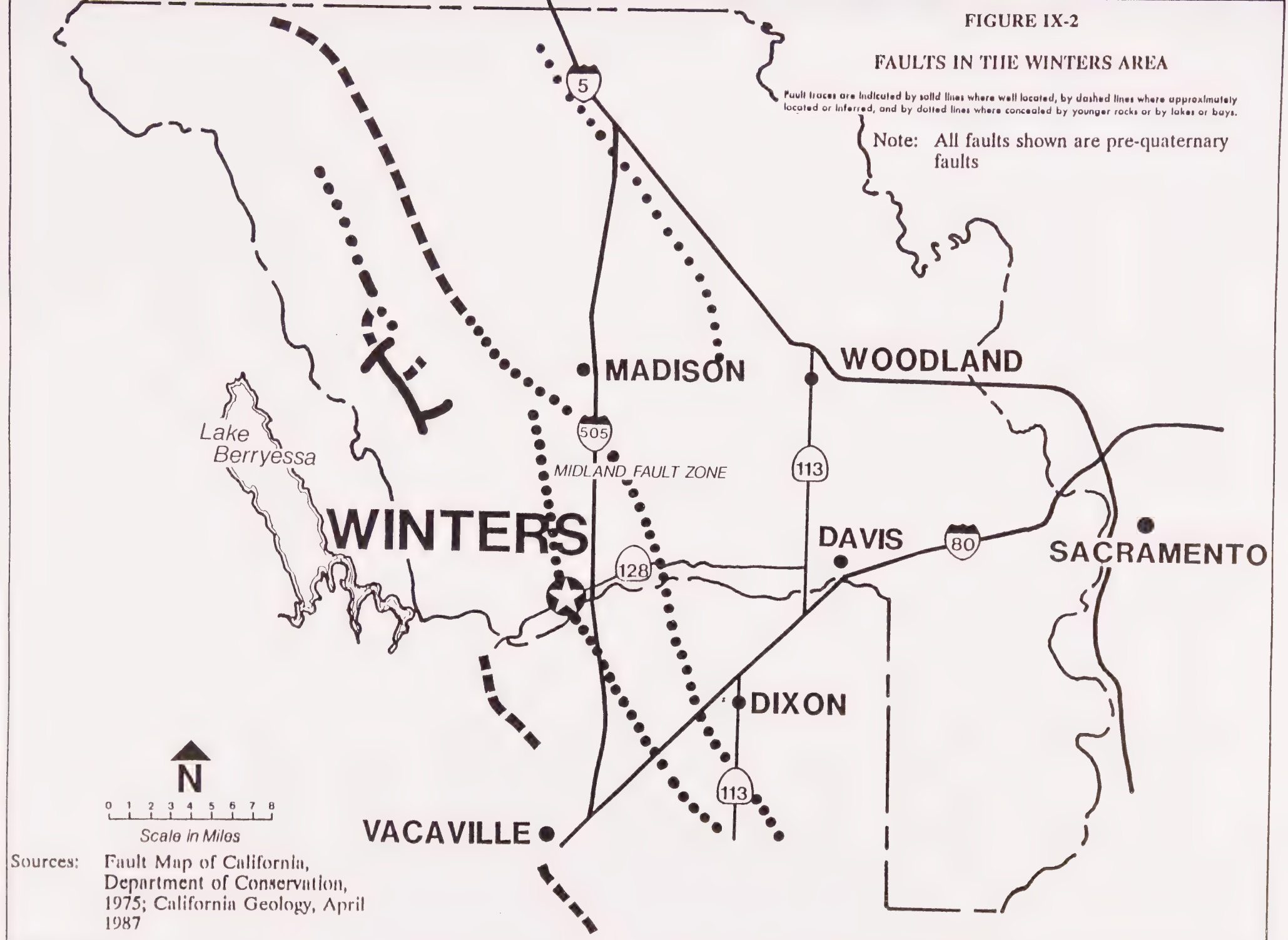


Sources: Fault Map of California, Department of Conservation, 1975; California Geology, April 1987

- The quality of workmanship and materials used in its construction;
- The location of the epicenter and the magnitude of the earthquake; and
- The duration and character of the ground motion.

The effects of groundshaking can be damaging well beyond the fault trace that generates the shaking. For example, the segment of the San Andreas fault which caused the great damage and destruction in San Francisco in 1906 was offshore, beyond the Golden Gate.

Most of Winters is located on alluvium deposits of varying depths, which can increase the potential for groundshaking damage. As earthquake waves pass from more dense rock to less dense alluvial or water-saturated materials, they tend to reduce in velocity, increase in amplitude, and accelerate more rapidly. Ground motion lasts longer and waves are amplified on loose, water-saturated materials than on solid rock. As a result, structures located on these types of materials suffer greater damage than those located on solid rock. "Poor ground" can be a greater hazard for structures than close proximity to the fault or epicenter.

Older buildings constructed before building codes were in effect, and even newer buildings constructed before earthquake resistance provisions were included in building codes, are the most likely to suffer damage in an earthquake. Most of Winters' buildings are one or two stories high and are of wood frame construction, which is considered the most structurally resistant to earthquake damage.

Older masonry buildings without earthquake-resistant reinforcement are the most susceptible to the sort of structural failure which causes the greatest loss of lives. The susceptibility of a structure to damage from earthquake groundshaking is also related to the foundation material underlying the structure. A foundation of rock or very firm material intensifies short period motions, which affect the low-ridged buildings more than tall, flexible ones. A deep layer of water-logged soft alluvium may cushion low-ridged buildings, but accentuate the motion in tall buildings. The amplified motion resulting from softer alluvium soils can also severely damage older masonry buildings.

Downtown Winters contains a small concentration of older unreinforced masonry buildings. In 1990, in conjunction with an economic development study of the Winters' downtown area, a structural engineer conducted an evaluation of the older unreinforced masonry buildings. The evaluation identified nine buildings along Main Street that require retrofit improvements to meet seismic standards of the State Historic Building Code. The evaluation report identified the needed improvements for each building and estimated their costs.

Other potentially dangerous conditions include building projections which are not firmly anchored, such as parapets and cornices. These projections could collapse during periods of strong and/or sustained groundshaking.

Fire is often the major form of damage resulting from groundshaking effects. Ninety percent of the destruction in the 1906 San Francisco earthquake was caused by fire. This devastation resulted largely from the great number of buildings constructed of combustible materials, damage to much of the city's firefighting facilities, and the rupture of water mains.

Most earthquake-induced fires start because of ruptured power lines, damage to wood, gas, or electrical stoves, and damage to other gas or electrical equipment. This points out the need for greater emphasis

on non-combustible material and on special construction techniques so that water mains will remain unbroken during large earthquakes.

Ground Failure

In addition to structural damage caused by groundshaking, there are other ground effects caused by the shaking. These are known as ground failure effects and include liquefaction, settlement, lateral spreading, lurch cracking, and earthquake induced landslides.

Liquefaction is the loss of soil strength due to seismic forces acting on water-saturated granular soils. This loss of strength leads to a "quicksand" condition which causes many types of ground failure. When the liquefied granular layer occurs at the surface, objects can either sink or float depending on their density. The evaluation of potential for liquefaction is complex and must consider soil type, soil density, groundwater table, and the duration and intensity of shaking. Liquefaction is most likely to occur in deposits of weak saturated alluvium or similar deposits of artificial fill.

Liquefaction potential within Winters exists in low-lying areas composed of unconsolidated, saturated, clay-free sands and silts.

Winters is theoretically subject to liquefaction resulting from earthquakes on several faults. The expected degree of earthquake-caused shaking is, however, relatively low, and it is unlikely that significant liquefaction would occur. Further study is needed to identify specific areas within the Winters area that are susceptible to liquefaction.

Settlement is the compaction of soils and alluvium caused by groundshaking. It occurs irregularly and may be partly controlled by bedrock surfaces, and old lake, slough, swamp, and stream beds. The amount of compaction may range from a few inches to several feet. Irregular compaction is most widespread and extreme in major earthquakes. It may occur as much as 75 to 80 miles from the epicenter and may amount to several feet, even at that distance. Compaction is most likely to occur in areas, such as Winters, which are underlain by soft, water-saturated, low density alluvial material.

Lurch cracking refers to fractures, cracks, and fissures produced by groundshaking, settling, compaction of soil, and sliding and may occur many miles from the epicenter of an earthquake. These effects are characteristic of earthquakes large enough for significant ground motion to occur. The larger the earthquake magnitude, the more extensive the effects. Thus, a major earthquake may damage streets, curbs, sewer, gas, and water lines.

Lateral spreading is the horizontal movement or spreading of soil toward an open face such as a stream bank, the open side of fill embankments, or the sides of levees. Artificial fill areas which are improperly engineered or which have steep, unstable banks are most likely to be affected.

The potential for lurch cracking and lateral spreading is highest in areas where there is a high groundwater table, relatively soft and recent alluvium deposits, and where creek banks are relatively high. Fracture patterns from lurch cracking and lateral spreading may be controlled by the configuration of shallow bedrock structures, by highway surfacing, by the margins of fill, and engineering structures.

Seiches

Seiches are earthquake-generated waves within enclosed or restricted bodies of water. Major, and even moderate earthquakes, miles away from Winters can produce oscillations or waves in local bodies of water which could overtop and damage levees and cause water to inundate surrounding areas.

The bodies of water most susceptible to seiches in or near Winters are Putah Creek and Lake Berryessa. The danger of seiches during seismic events is limited to those periods when the creek and lake are full during the flood season. Overtopping of Monticello Dam could cause severe flooding along Putah Creek. (See Flooding Hazards)

Due to its distance from the ocean and San Francisco Bay, Winters is not susceptible to tidal-related flooding from tsunami or tidal waves.

Land Subsidence

Subsidence of the land surface can result from extraction of groundwater, gas, oil, and geothermal energy. Hydrocompaction, peat oxidation, and fault rupture are also potential causes of subsidence. Groundwater withdrawal subsidence is the most extensive type in California. This type of subsidence has been observed only in valley areas underlain by alluvium.

Subsidence can cause a change in gradients affecting the carrying capacities of canals, drains, and sewers. Compaction of sediments at depth has caused extensive damage to water wells in areas where subsidence has been substantial. The magnitude of subsidence depends primarily on the following five factors:

- The magnitude of water level decline.
- The thickness of the alluvium tapped by wells.
- The individual and combined thicknesses and compressibilities of the silt and clay layers within vertical sections tapped by wells.
- The lengths of time during which water level declines are maintained.
- The number of occurrences of heavy withdrawals of water in any single area.

Based on recent measurements, it has been determined that the level of the groundwater basin in the Winters area has remained relatively constant in recent years.

Landslide and Erosion Hazards

Historically, a number of major slides have occurred throughout the coastal range to the west. The steep slopes and unstable geology of the area presents a limitation to building, and the hazards would be exacerbated by earthquakes. Because most of Winters is level, landslides are not a problem, except for potential slumping along creek banks.

According to the U.S. Soil Conservation Service, the erosion hazard exhibited by surface soils is considered low. The essentially level topography of the Winters area means that erosion will not present a significant problem.

FLOODING HAZARDS

Localized and Regional Flooding

The city of Winters is situated on an alluvial fan formed by Putah Creek. Drainage is generally to the southeast from the gently sloping hills to the west of Winters across generally flat agricultural and emerging residential areas. The slope of the Winters area is minimal, averaging less than one percent. The soils of the vicinity consist principally of well-drained, silty clay loams of the Rincon and Brentwood Series.

Much of the city of Winters is in the Chickahominy/Moody Slough watershed, a sub-unit of the Putah Creek watershed. Chickahominy/ Moody Slough watershed covers approximately 100 square miles. The principal tributary streams in this watershed are the Moody (Dry) Slough, Chickahominy Slough and Union School Slough.

The Moody Slough watershed is east of Dry Creek, north of Putah Creek and largely west of Interstate 505. It tends to be the source of the Winters' primary flood problems. Of this 9.4 square mile watershed, the southwestern corner (which comprises a 0.3 square mile area) drains in a southwesterly direction into a closed basin just west and slightly north of the cemetery. High water in this area does drain to Dry Creek via the "Cemetery Diversion," although much standing water also evaporates and percolates into the groundwater basin, with subsurface flow toward the creek. Ponding regularly occurs in this basin during winters of high rainfall.

The remainder of the slough drains east across Road 89 and then northeast for about a mile where it crosses beneath Interstate 505 in a double culvert. On the east side of the Interstate, Moody Slough becomes Dry Slough. Dry Slough flows in an easterly direction and Chickahominy Slough discharges into Dry Slough about four miles east of the Interstate. Dry Slough converges with Willow Slough and Bypass and discharges into the Yolo Bypass northeast of the city of Davis.

The western portion of the city of Winters drains into Putah Creek via Dry Creek and Highland Canal. Dry Creek encompasses a 22.7 square mile watershed originating in the steep eastern slope of Rocky Ridge on the north side of Putah Creek. The main channel of the creek is badly eroded, with vertical, deeply incised banks.

Current drainage for the eastern portion of the city of Winters is accommodated by Moody Slough. Historically, winter rains have induced shallow flooding of the floodplain surrounding Putah Creek. Beginning in the late 19th century, the area's natural drainage courses were deepened, cleared of vegetation and realigned along roads and fields. Moody Slough has been diverted and channelized through the years and is a manmade channel beginning 3,000 feet west of Road 89 (Railroad Street). Approximately 650 feet west of Road 89 this drainage channel crosses an irrigation channel known as Willow Canal. The canal passes under Moody Slough by way of an inverted siphon.

Flooding has been a frequent occurrence in the Moody Slough watershed through the years. Major flood events have been recorded in 15 of the last 52 years. The 1980 flood covered approximately 12,000 acres. One of the most flood-prone areas in the northern portion of the Winters area is around Moody Slough between Railroad Avenue and Interstate 505. Overland flows in excess of the 25-year flood level stream southeast from the Willow Canal siphon toward the junction of Interstate 505 and State Highway 128. (A 25-year flood event is a flood with a runoff level that recurs on the average of once every 25 years.) Water ponds around this northwest side of the intersection, backing eventually into Moody Slough and

under the Interstate, or overtopping Highway 128 and flowing south into Putah Creek. Figure IX-3 shows the approximate area that would be inundated by a 100-year flood event. The worst flooding occurs during multi-day storms. Flooding during these extended rainfalls has caused damage to structures, streets, and roads, agricultural land, equipment and crops. Following the floods of 1980, Chapman Reservoir was constructed (1982) to reduce flood peaks reaching the Moody Slough.

Most flooding within Moody Slough occurs as a result of inadequate channel and culvert capacities, magnified by ponding against dikes adjacent to irrigation channels and road embankments. The Soil Conservation Service's 1976 report, *Flood Hazard Analyses - City of Winters*, indicates that flooding occurs every two to five years along the west side of Road 89 from Edwards Street to the Moody Slough crossing. Inadequate bridge and channel capacity cause the water to overtop Railroad Avenue.

The report also indicates that the restriction on the Moody Slough channel at the Willow Canal siphon has a capacity about equal to the 25-year flood. Flows exceeding this level flow to the south and east between Highway 128 and the Willow Canal. According to the report, most flooding in the area can be characterized as a shallow overland type, with depths not greater than two to three feet, except in a few areas of localized ponding.

Based on the FEMA Flood Insurance Rate Map, portions of the city are located within the 100-year flood plain of the Moody Slough watershed. Any development within a designated flood plain needs to conform with Yolo County's or the City of Winters' flood plain management regulations. These regulations require that residential and commercial units be designed so that the lowest habitable floor is raised above the base flood elevation. Alternatively, they must be flood-proofed such that their walls and wastewater facilities minimize flood water infiltration.

Since the completion of Monticello Dam in 1957, flooding on Putah Creek has been virtually eliminated. The lowered water surface elevations in Putah Creek have also resulted in a lowering of flood water elevations in Dry Creek near the city. Both creeks have the capacity to contain 500-year flood levels within their banks.

The City participates in the Federal Flood Insurance Program.

Monticello Dam Failure

Monticello Dam is located approximately 10 miles west of the city, on Lake Berryessa. When full, the lake contains 1.6 million acre-feet of water. Failure of the dam or overtopping of the dam by flood waters could result in severe flooding of the Winters area and loss of life. According to the U.S. Bureau of Reclamation, Division of Safety, total collapse of the dam at full capacity would release a volume of 5.6 million cubic feet per second (cfs) down Putah Creek decreasing to approximately 2.7 million cfs near Winters. Flood waters reaching Winters would inundate portions of the city to a depth of up to 21 feet within a matter of 12 minutes. Figure IX-4 depicts the area which would be inundated, based on information compiled in 1981. (Source: U.S. Bureau of Reclamation, Division of Dam Safety.)

Overtopping of the dam as a result of heavy rainfall or earthquake action could also release damaging flood waters. In a worse-case scenario, a six foot overtopping for a period of 51 hours would release 88,000 cfs, more than twice the capacity of the spillway.

While the extent of property damage and safety risk is not fully understood, factors such as the degree of dam failure and the volume of water behind the dam at the time of collapse would affect the extent of

flooding experienced during such a disaster. This occurrence, however, unlikely, is addressed in the Yolo County Emergency Plan. The Bureau of Reclamation is currently studying the structural adequacy of the dam and spillway.

Figure IX-4 depicts the area subject to inundation from Lake Berryessa floodwaters.

FIRE HAZARDS

Fire, involving structures and cropland presents one of the greatest hazards to safety in Winters. Both structural and wildland fire hazards threaten life and property within Winters. Wildland fires resulting from both man-made and natural causes occur in forest, brush, or grasslands, primarily in sparsely developed or existing open space lands. Structures and urban development may also be threatened or destroyed in the area of wildland fires. Structural fires usually result from man-made causes and threaten many residential and commercial structures, especially those built before building and fire codes were established. These substandard structures represent the highest potential for injury, death, or loss of property.

Structural Fire Hazards

Structural fire hazards are primarily associated with residential, commercial, and industrial structures and activities. Urban fires can start for a wide variety of reasons, including electrical shorts, industrial accidents, carelessness, and arson. In general, however, fire hazards are greatest in buildings and structures which are old or substandard. Older structures in Winters are generally in the city's original neighborhoods.

Wildfire Hazards

The outbreak and spread of wildland fires in the Winters area is a potential danger, particularly during the summer months. Cropland and the buildup of understory brush which under natural conditions would be periodically burned off creates conditions conducive to larger and more intensive fires.

Variable conditions such as humidity, drought, rainfall, wind velocity, type and presence of vegetation, and fuel buildup are the main determinants to the start, spread, and control of wildland fires. The annual drought season (May to October) gives rise to the most hazardous fire conditions, especially in the latter months. It should be noted that most wildland fires in California are the result of either arson or simple human carelessness.

Because much of the area surrounding Winters is cultivated and lacks significant native vegetation, the greatest potential for wildfire is along the densely vegetated banks of Putah Creek.

HAZARDOUS MATERIALS

In compliance with the Health and Safety Code, the Yolo County Office of Emergency Services is responsible for conducting an inventory of hazardous materials within the city. Upon completion, it will be used by the Fire Department in fire prevention programs and emergency response.

Use of agricultural chemicals, particularly when applied by aerial spray, and burning of fields may have associated health and safety hazards. According to the Yolo County Air Pollution Control District, agricultural burning is prohibited within three miles of a populated area if wind is blowing in that

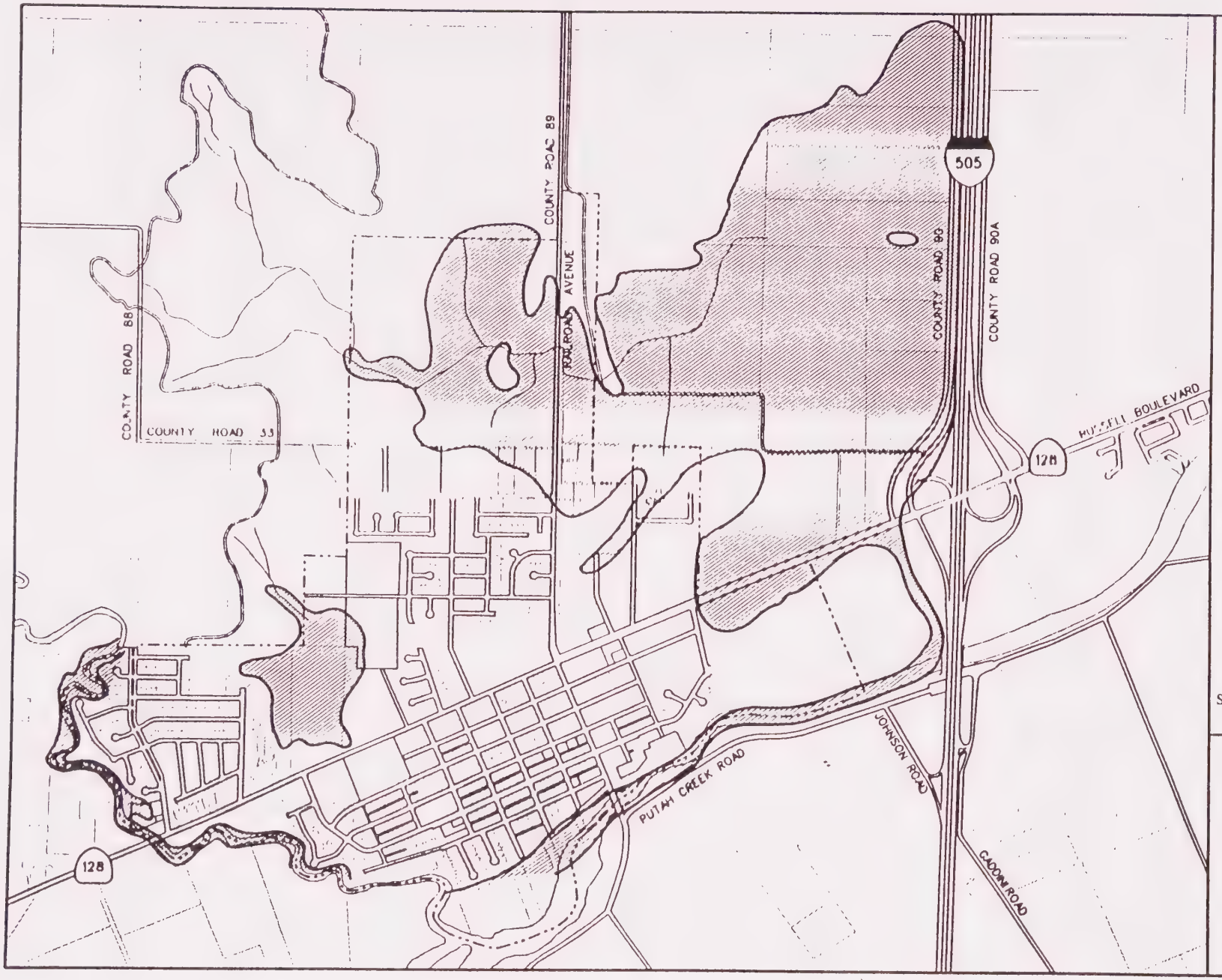


FIGURE IX - 3

100 - YEAR FLOOD PLAN

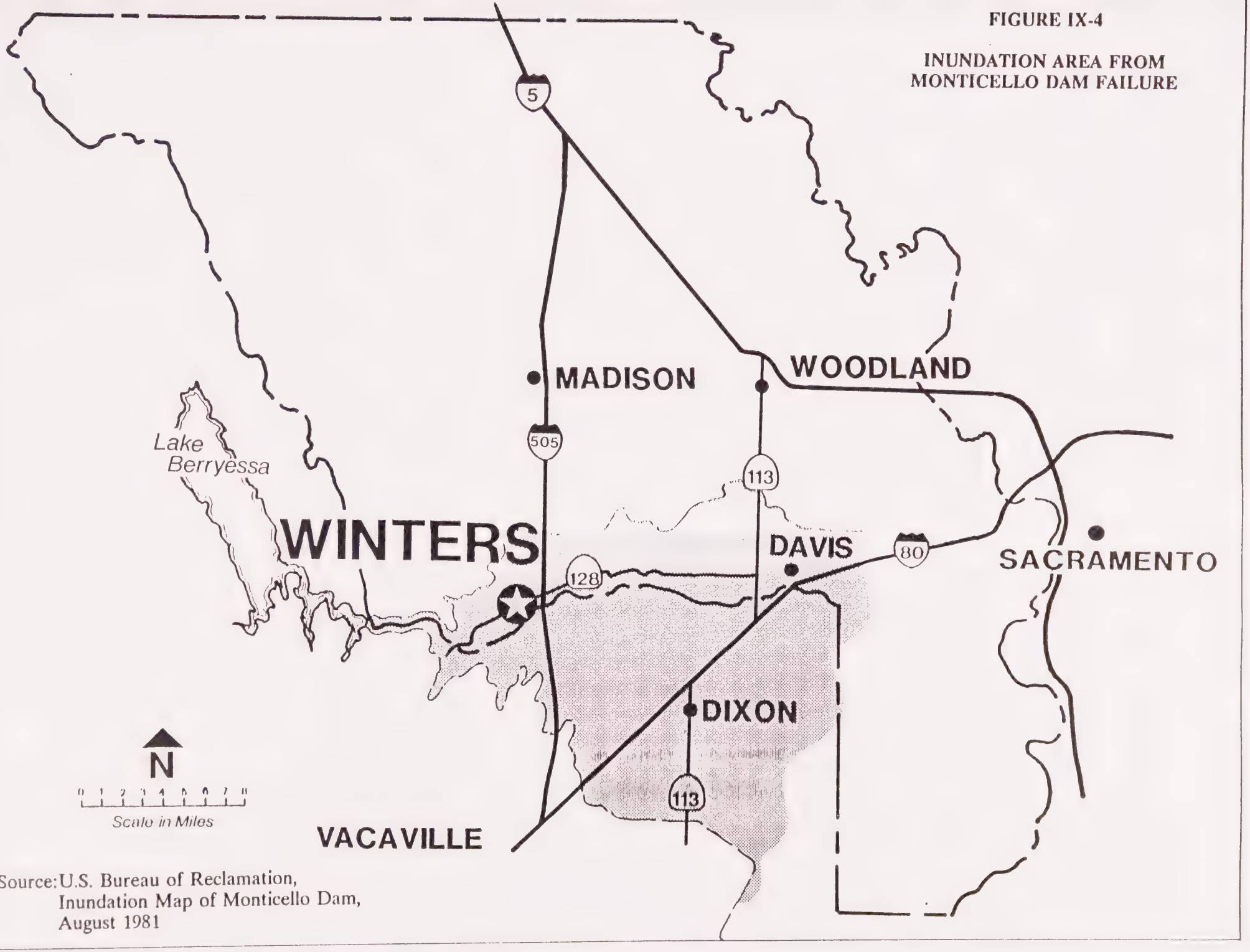
Source: Federal Emergency Management Agency

CITY OF WINTERS

BASE MAP: JUNE 1991

FIGURE IX-4

INUNDATION AREA FROM
MONTICELLO DAM FAILURE



Source: U.S. Bureau of Reclamation,
Inundation Map of Monticello Dam,
August 1981

direction. The Federal Aviation Agency (FAA) regulates aircraft engaged in aerial spray operations (i.e., cropdusting).

In spite of the involvement of the regulating agencies described above, developed areas in close proximity to certain agricultural operations could be subjected to a degree of health risk.

EMERGENCY RESPONSE

Emergency response organization and responsibilities in Winters are governed by the County of Yolo's *Emergency Plan*, the current edition of which was prepared in December 1983. The County is currently updating an emergency plan for the entire county, including the city of Winters.

Figure IX-5 outlines the organizational structure to be instituted in the case of a peacetime/war emergency. The Chairperson of the Board of Supervisors (Emergency Services Director) and other County staff fulfill specified responsibilities outlined in Figure IX-5, according to the *Emergency Plan*. The plan establishes operational procedures to be followed in the event of military attack and in the event of natural and man-made disasters. Among the peacetime emergencies mentioned in the plan are:

- Earthquake
- Flood
- Fire
- Accident (Transportation, Industrial)
- Civil Disturbance
- Storm
- Pollution
- Epidemic

The plan outlines procedures to be followed during each phase of an emergency (e.g., "pre-emergency," "emergency possible," "emergency expected," "emergency onset," and "post emergency").

NOISE

As part of the State-mandated noise element, state law and guidelines prepared by the California Department of Health Services require that certain major noise sources and areas containing noise sensitive land uses be identified and quantified by preparing generalized noise exposure contours for current and projected conditions within the community. Contours may be prepared in terms of either the Community Noise Equivalent Level (CNEL) or the Day-Night Average Level (L_{dn}), both of which are descriptors of total noise exposure at a given location for an annual average day. This noise exposure information has been incorporated into the General Plan as a basis for achieving land use compatibility through the long-range planning and project review. It can also be used to provide baseline levels and noise source identification for development and enforcement of a local noise control ordinance.

According to state law and guidelines, the following major noise sources should be considered in preparing a noise element:

- Highways and freeways
- Primary arterials and major local streets
- Railroad operations
- Aircraft and airport operations

- Local industrial facilities
- Other stationary sources

Noise-sensitive areas considered in the noise element should include areas containing the following noise-sensitive land uses.

- Schools
- Hospitals
- Rest homes
- Long-term medical or mental care facilities
- Other uses deemed noise sensitive by the local jurisdiction

Noise and Its Effect on People

Noise is often defined simply as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon. Researchers for many years have grappled with the problem of translating objective measurements of sound into directly correlatable measures of public reaction to noise. The descriptors of community noise in current use are the results of these efforts and represent simplified, practical measurement tools to gauge community response. Before elaborating on these descriptors, it is useful to first discuss some fundamental concepts of sound.

Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and hence are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, now call Hertz (Hz) by international agreement.

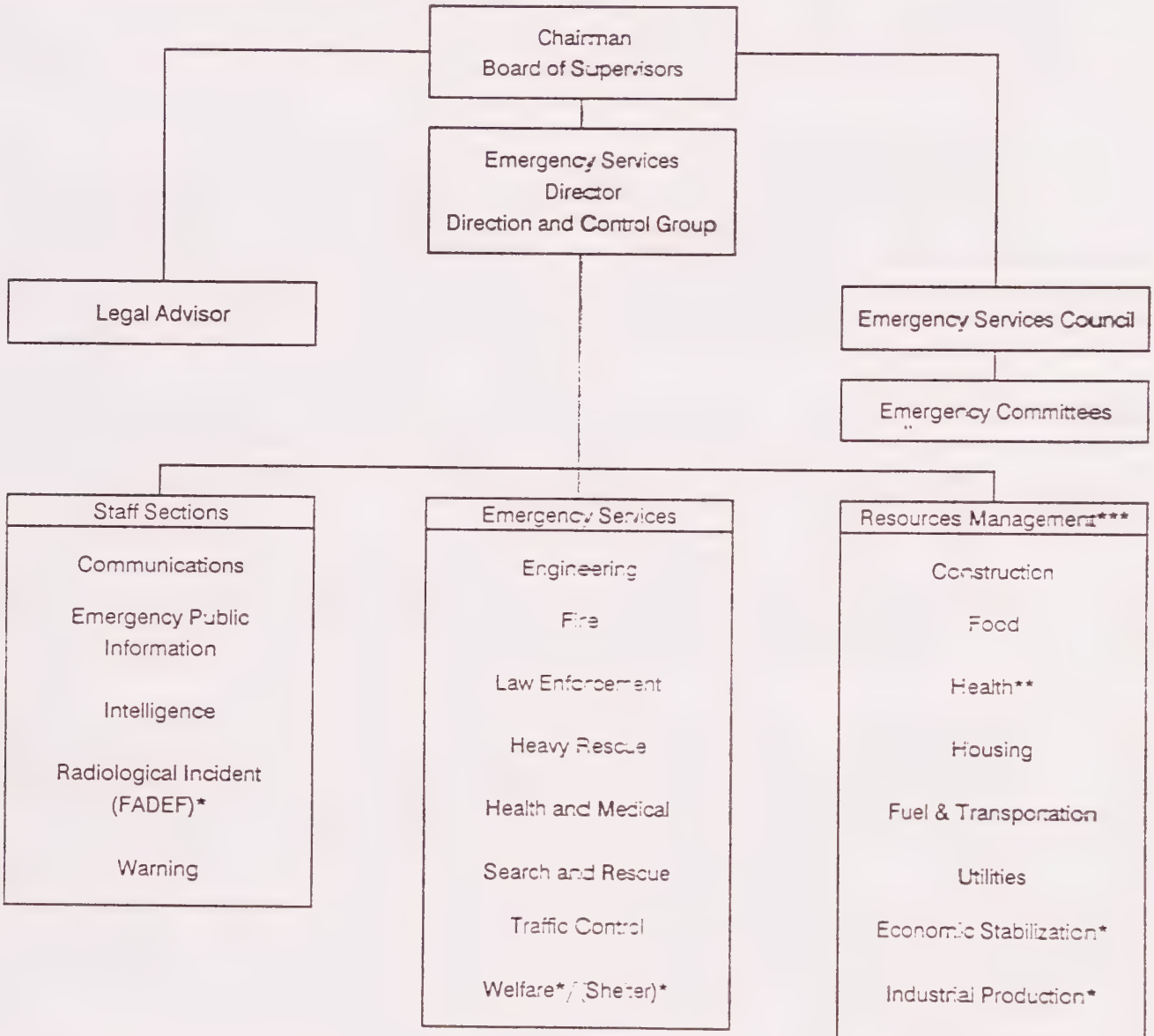
To measure sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals) as a point of reference, defined as 0 decibels (dB). Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range.

The perceived loudness of sounds is dependent upon many factors, including sound pressure levels and frequency content. In the range of usual environmental noise levels, however, perception of loudness is relatively predictable and can be approximated by weighing the frequency response of a sound level measurement device (called a sound level meter) by means of the standardized A-weighing network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. Generally, a change in noise level of at least 5 dBA is required before any noticeable change in community response would be expected. A 10 dBA change in noise level is perceived as being subjectively a doubling in loudness. Typical A-weighted sound levels generated by noise sources commonly found in Winters are illustrated in Table IX-4.

FIGURE IX-5

PEACETIME/WAR EMERGENCY ORGANIZATION CHART

This chart illustrates the initial county emergency organization formed in response to a locally proclaimed "Local Emergency". Those positions marked with an asterisk (*) would only be mobilized during a War Emergency.



_____ Line of Authority

War Emergency Only.

** County Emergency Service authorized to operate within city jurisdiction.

*** Member unit of the statewide Emergency Resource Management Organization.

Source: County of Yolo Emergency Plan, December 1983

TABLE IX-4

TYPICAL NOISE LEVELS FOUND IN THE CITY OF WINTERS

Loudness Description	Noise Level In dBA	Representative Noise Source in the City of Winters
Threshold of Pain	130	
	120	
	110	Pop music in bar or nightclub
Very Loud	100	Auto horn at side of auto
	90	
Moderately Loud	80	Loud motorcycle cruising at 50 feet Impulsive tool sound near walnut plant Diesel truck idling at 25 feet
	70	L_{eq} at residence near walnut plant
	60	Conversational voice level at four feet
Quiet	50	Automobile idling at 50 feet Playground activities Typical L_{dn} in residential area
	40	Minimum level within city limits
Very Quiet	30	Soft whisper at 10 feet
Just Audible Normal Conditions	20	Softly rustling leaves at ten feet
	10	
Threshold of audibility for young, healthy ears under lab conditions	0	

Source: Sound Solutions, 1990

It is common to describe community noise in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is a type of average level called the equivalent sound level (L_{eq}), which is the sound level associated with a steady-state sound containing the same total energy as a time-varying signal over a given period. The L_{eq} is the basis of long term noise descriptors such as L_{dn}.

The long term noise descriptor used here is the L_{dn}. The L_{dn} (day-night average level) is calculated from L_{eq} over 24 hours per day, 365 days per year, with a 10 decibel penalty applied to nighttime (10 p.m. to 7 a.m.) L_{eq}s. The nighttime penalty is based upon the assumption that people react to nighttime noise as though it were perceived to be twice as loud as daytime noise.

Noise in the community has often been cited as a health problem, not so much in terms of actual physiological damage, such as hearing impairment, but more in terms of reducing general well-being and contributing to undue stress and annoyance. Interference with human activities such as sleep, speech, recreation, and tasks demanding concentration or coordination, are the principal cause of noise-induced health problems and stress.

Existing Noise Environment

Noise levels in the City of Winters are typical of those found in quiet suburban areas. At present, approximately 97 percent of the population lives in areas exposed to noise levels below the nominal state limit for residential areas (L_{dn} = 60 dBA).

Motor vehicle traffic is the only significant source of noise in most areas of the city. The highest traffic noise levels are found at locations near Highway 128, the only major arterial through town. Ambient noise levels at moderate and large distances from Highway 128 are predominantly due to traffic on that arterial and on the more distant I-505 east of town.

There is no airport, surface transit system, heavy industry or major manufacturing facility in or near the city of Winters which could produce significantly high noise levels. However, the Mariani nut processing plants have generated noise complaints from a small number of neighboring residents. Other complaints have occasionally arisen from noise due to sources such as barking dogs and auto sound systems.

Recent experience in connection with the nut processing operations illustrates that planning is needed to insure future compatibility of adjacent, differing land uses. Such planning can insure that proposed noise sensitive facilities, such as dwellings, are not approved in noisy areas unless appropriate noise mitigation measures are taken.

Existing Noise Levels

Figure IX-6 shows the location of the noise sources and noise sensitive areas in the city of Winters. The noise environment is generally dominated by motor vehicle traffic, although other sources must be considered at some places and times. The significant sources are discussed individually below.

Roadway Noise

Table IX-5 and Figure IX-7 show the locations of the L_{dn} noise contours near various roadways in and around the city of Winters. These are considered the most important sources of traffic noise. The contour locations were derived from the FHWA traffic noise model, using Caltrans vehicle noise emission data. In some cases, the model was adjusted for consistency with measurement data.

Based on the positions of the roadway contours, Table IX-7 shows percentages of the population of Winters currently exposed to various L_{dn} levels.

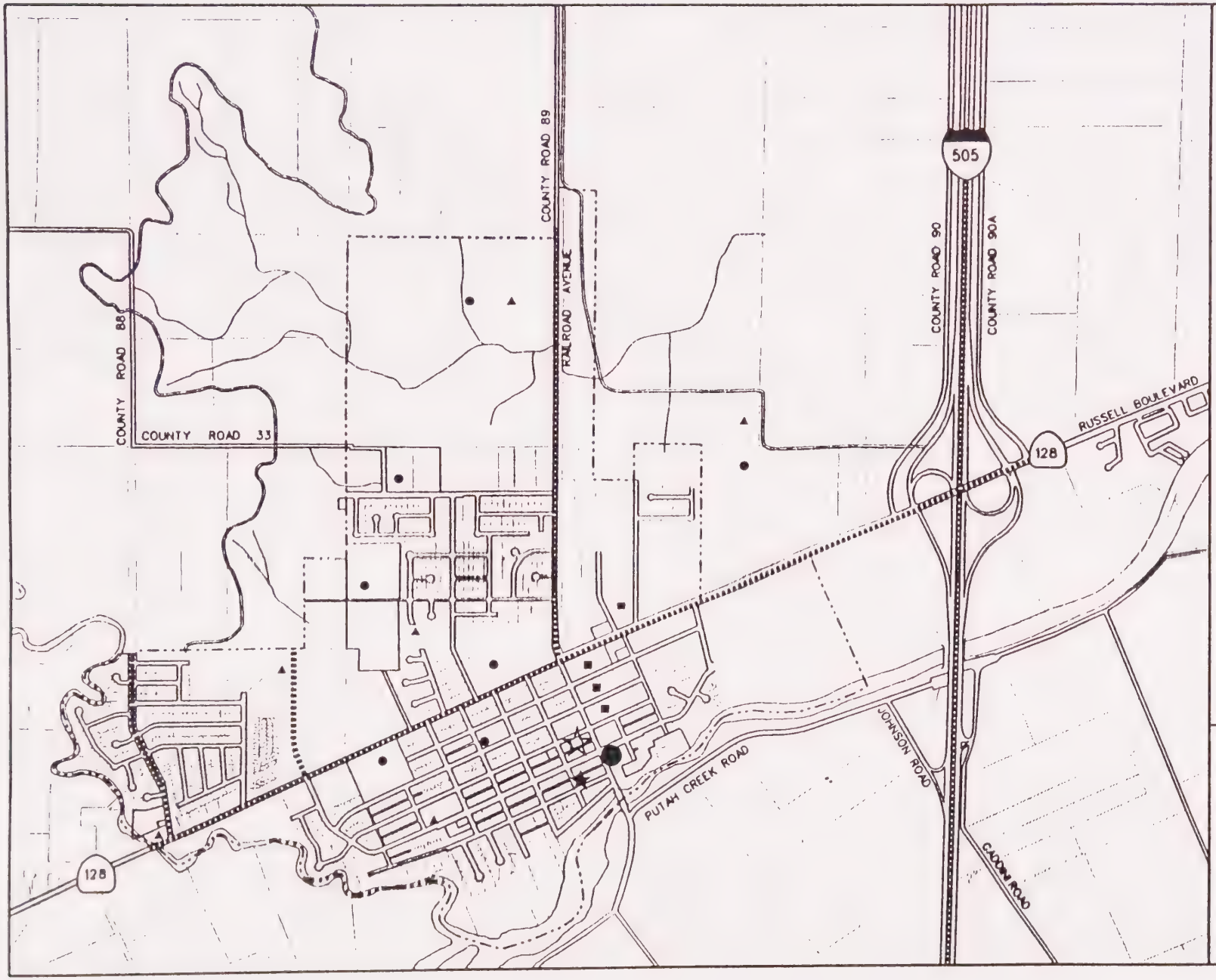


FIGURE IX-6

COMMUNITY NOISE ENVIRONMENT

Noise Sensitive Areas

- Community Center
- Library
- Schools (Existing and Future)
- Parks (Existing and Future)

Also: Any area designated residential on the General Plan Land Use Diagram

Noise Sources

- Fire Department (Siren)
- Mariani Nut Company
- Noise Significant Roadways

Also: Any future roadway having a 65 dBA Ldn contour further than 50 feet from the center line

Source:Sound Solutions, 1990

CITY OF WINTERS

N

0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

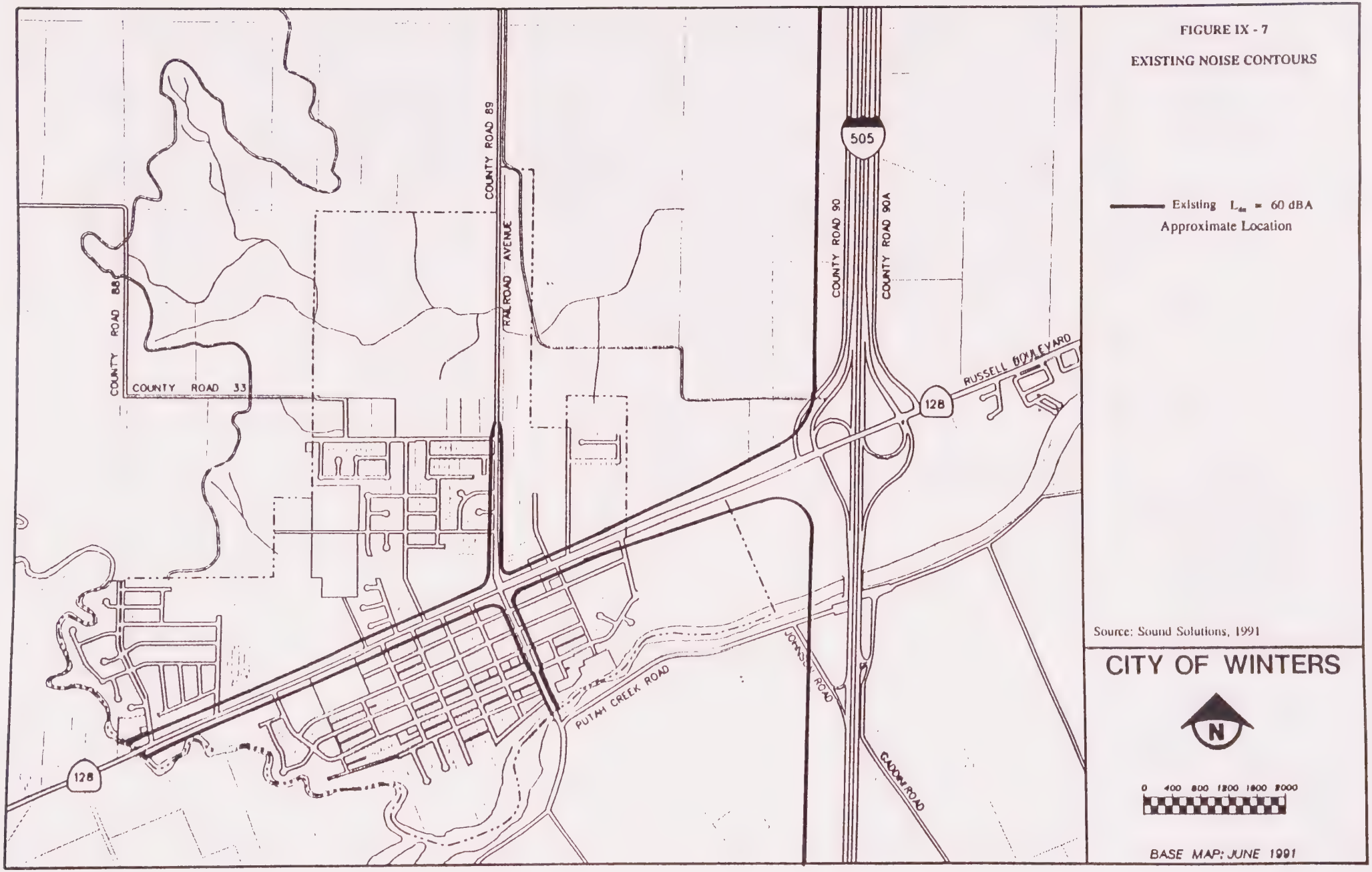

COUNTY ROAD 89
RAILROAD AVENUE
505
COUNTY ROAD 90
COUNTY ROAD 90A
COUNTY ROAD 88
COUNTY ROAD 33
RUSSELL BOULEVARD
128
PUTAH CREEK ROAD
JOHNSON ROAD
GADDINI ROAD
128
FIGURE IX - 7
EXISTING NOISE CONTOURS
Existing L_{dn} = 60 dBA
Approximate Location
Source: Sound Solutions, 1991
CITY OF WINTERS
N
0 400 800 1200 1600 2000
BASE MAP: JUNE 1991

TABLE IX-5

ROADWAY L_{dn} CONTOUR DISTANCES
FROM ROADWAY CENTERLINES (FEET)*

EXISTING CONDITIONS

Roadway Segment Description	60 dBA	65 dBA	70 dBA
Interstate Route 505	572	291	148
State Route 128 (Grant Street)			
Rte. 505-Ind. Access	212	98	44
Ind. Access-Morgan	212	98	44
Morgan-Railroad	142	66	24
Railroad-Main	91	39	--
Main-City Limit	113	52	--
Other City Streets			
ADT = 2,000	40	--	--
ADT = 3,000	56	--	--
ADT = 4,000	68	25	--
ADT = 5,500	84	34	--
ADT = 7,500	104	48	--
ADT = 10,000	125	58	--

* The contour locations are nominal in the sense that they do not take into account the possible shielding of some areas by buildings, fences, and other structures.

The approximate location of contours near roadways other than I-505 and Highway 128 may be found by first determining the Average Daily Traffic (ADT) volume on the street of interest, and then reading the locations from the row under "Other City Streets" which is labeled by the ADT closest to that of the street of interest.

"--" indicates that the contour in question lies very close to or in the traffic lanes.

Source: Sound Solutions, 1990

Mariani Nut Company

Neighbors immediately adjacent to the Mariani Nut Company plants have complained in the past about noise from processing machinery, trucks and mobile equipment, such as forklifts. Measurements have shown that noise levels near the plants are significantly higher than typical ambient noise levels elsewhere in Winters. The levels in Table IX-4 provide examples.

Agricultural Machinery

The possible early morning operating hours of agricultural machinery (tractors, cultivating machinery, harvesting machinery) raise the possibility of noise conflicts at boundaries between agricultural and residential land uses. This has apparently not been a serious problem in the past, and the potential for

conflict is expected to diminish as the city is built out and agricultural use is removed from the immediate vicinity of dwellings.

Other Noise Sources

City noise sources include sirens used in emergencies and occasionally tested at other times. While the sound levels involved are high, they are necessary for the purpose of these devices. The relative infrequency of these events suggest that the noise impacts are not significant. Also, while the city is not in a flight path, intrusive noise from military aircraft, principally large jet transport planes from Travis Air Force Base, can frequently be heard.

Future Noise Levels

Based on the *1992 General Plan* land uses and circulation plan and projected traffic volumes, Table IX-6 and Figure IX-8 show the locations of the L_{dn} noise contours near various roadways in and around the city of Winters.

Based on the positions of the roadway contours, Table IX-7 shows the percentages of the population of Winters that are expected to be exposed to the various L_{dn} levels.

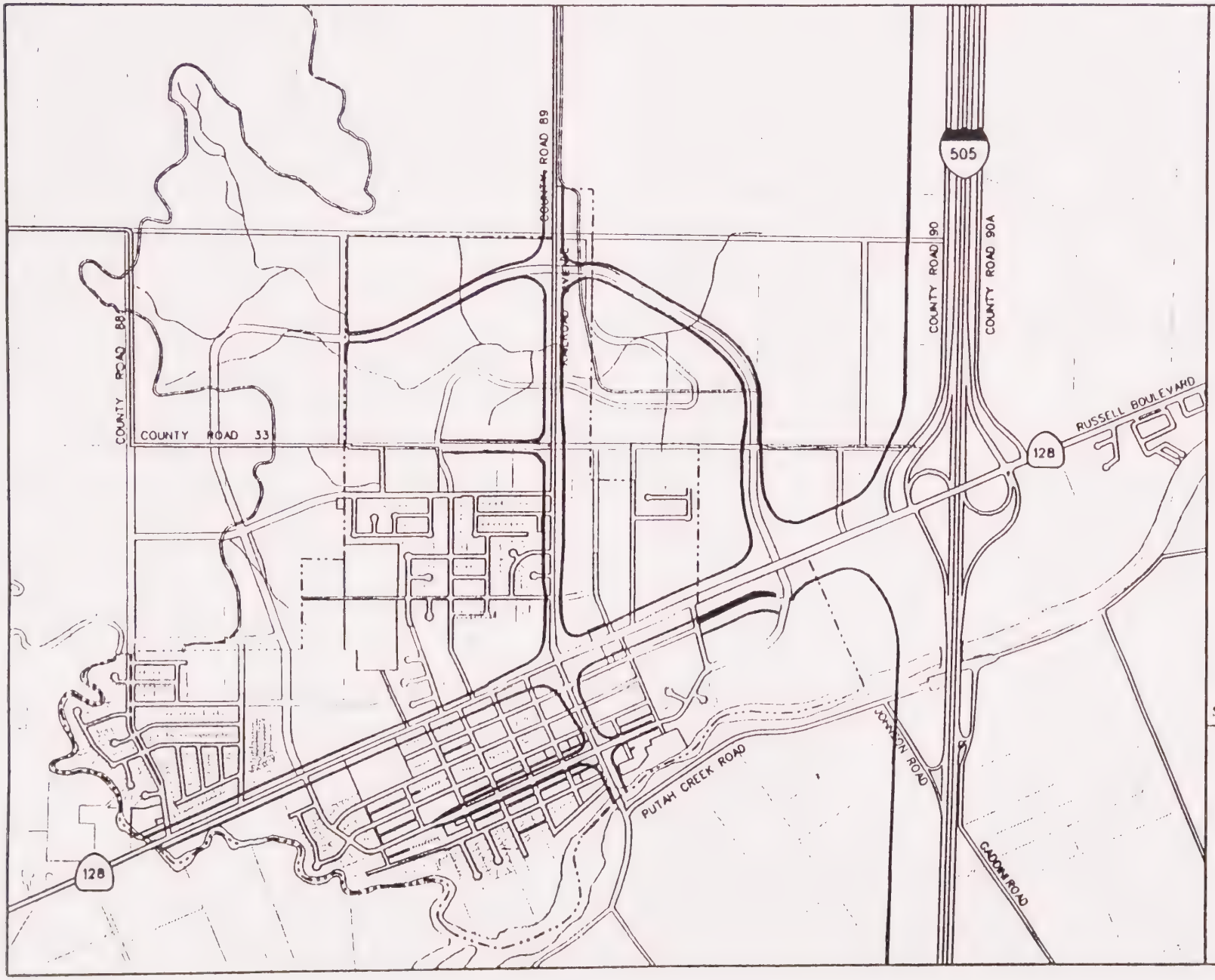


FIGURE IX-8

FUTURE NOISE CONTOURS

L_{dn} = 60 dBA

Approximate Location

Source: Sound Solutions, 1992

CITY OF WINTERS

N

0 400 800 1200 1600 2000

BASE MAP: JUNE 1991

TABLE IX-6

ROADWAY L_{dn} CONTOUR DISTANCES
FROM ROADWAY CENTERLINES (FEET)*

FUTURE CONDITIONS

Roadway Segment Description	60 dBA	65 dBA	70 dBA
Interstate Route 505	750	381	194
State Route 128 (Grant Street)			
Rte. 505-Ind. Access	295	137	64
Morgan-Railroad	239	111	52
Railroad-Main	165	77	36
Main-City Limit	136	63	29
Other City Streets			
ADT = 2,000	40	--	--
ADT = 3,000	56	--	--
ADT = 4,000	68	25	--
ADT = 5,500	84	34	--
ADT = 7,500	104	48	--
ADT = 10,000	125	58	--

* The contour locations are nominal in the sense that they do not take into account the possible shielding of some areas by buildings, fences, and other structures.

The approximate location of contours near roadways other than I-505 and Highway 128 may be found by first determining the Average Daily Traffic (ADT) volume on the street of interest, and then reading the locations from the row under "Other City Streets" which is labeled by the ADT closest to that of the street of interest.

"--" indicates that the contour in question lies very close to or in the traffic lanes.

Source: Sound Solutions, 1991

TABLE IX-7

EXISTING AND FUTURE NOISE EXPOSURE INVENTORIES

	L_{dn} RANGE (dBA)			
	Below 55	**55-60**	**60-65**	**65-70**
Approximate percentage of the existing population with residences exposed to noise levels within the given range	85.0%	11.8%	3.2%	0%
Approximate percentage of the future buildout population with residences exposed to noise levels within the given given range	74.1%	11.4%	12.7%	1.8%

Source: Sound Solutions, 1991

GLOSSARY

Alluvial
Soils deposited by steam action.

Ambient Noise
The broadly distributed composite noise due to sources near and far. The level of ambient noise represents the normal level of environmental noise at a given location. No particular sound source usually dominates the ambient.

Community Noise Equivalent Level (CNEL)
A 24-hour energy equivalent level derived from a variety of single-noise events, with weighting factors of 5 and 10 dBA applied to the evening (7 pm to 10 pm) and nighttime (10 pm to 7 am) periods, respectively, to allow for the greater sensitivity to noise during these hours.

Day/Night Sound Level, L_{dn}
An L_{dn} is the average (L_{eq}) level, in dBA units, during a one year period which results when 10 dBA are added to sound levels measured during night time hours (10 p.m. to 7 a.m.). Therefore, L_{dn} is a type of weighted average sound level which emphasizes noise levels measured during the more sensitive nighttime hours.

This descriptor is used as a measure of community noise exposure in many federal, state and local noise regulations and standards. It is the long term noise descriptor used in the noise element.

dBA Sound Level Units
Sound levels are conventionally measured in units of decibels, abbreviated dB. A indicates that the sound signal is electronically processed to mimic the response of the human ear before the level in decibels is determined.

Changes in sound level are roughly correlated with changes in perceived loudness. A 3 dBA increase in sound level is barely noticeable to the human ear under normal circumstances. An increase by 10 dBA is generally perceived as a doubling of loudness.

Equivalent Sound Level, L_{eq}
Essentially, L_{eq} is a type of average sound level. An L_{eq} is the level, in dBA units, of a fictitious steady state sound which would deliver the same acoustic energy during a given period of time as a time-varying, measured sound actually does deliver during the same period.

Expansive Soils
Soils that swell when they absorb water and shrink as they dry.

Fault
A fracture in the earth's crust forming a boundary between rock masses that have shifted.

Fire Hazard Zone
An area where, due to slope, fuel, weather, or other fire-related conditions, the potential loss of life and property from a fire necessitates special fire protection measures and planning before development occurs.

Flood, 100-Year

The magnitude of a flood expected to occur on the average every 100 years, based on historical data. The 100-year flood has a 1/100, or one percent, chance of occurring in any given year.

Flood Insurance Rate Map (FIRM)

For each community, the official map on which the Federal Insurance Administration has delineated areas of special flood hazard and the risk premium zones applicable to that community.

Flood Plain

The relatively level land area on either side of the banks of a stream regularly subject to flooding. That part of the flood plain subject to a one percent chance of flooding in any given year is designated as an "area of special flood hazard" by the Federal Insurance Administration.

Floodway

The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the "base flood" without cumulatively increasing the water surface elevation more than one foot. No development is allowed in floodways.

Hazardous Material

Any substance that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. The term includes, but is not limited to, hazardous substances and hazardous wastes.

Intermittent Sound

Any sound whose level varies appreciably with time and/or is negligible over considerable periods. Examples: Construction machinery, manufacturing or processing machinery, aircraft flybys.

Intrusive Noise

Noise which is perceptible over the existing ambient noise at a given location. The degree of intrusiveness of a sound depends upon such factors as its level, duration, frequency, time of occurrence and tonal or informational content. In some cases, noise may be considered intrusive given if it is lower in level than the ambient.

Impulsive Sound

Any intermittent sound whose sound level may be relatively high for only brief periods of time, typically one second or less. Examples: Hammer blows, drum beats.

Liquefaction

The transformation of loose water-saturated granular materials (such as sand or silt) from a solid into a liquid state. A type of ground failure that can occur during an earthquake.

Mercalli Intensity Scale

A subjective measure of the observed effects (human reactions, structural damage, geologic effects) of an earthquake. Expressed in Roman numerals from I to XII.

National Flood Insurance Program

A federal program that authorizes the sale of federally subsidized flood insurance in communities where such flood insurance is not available privately.

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